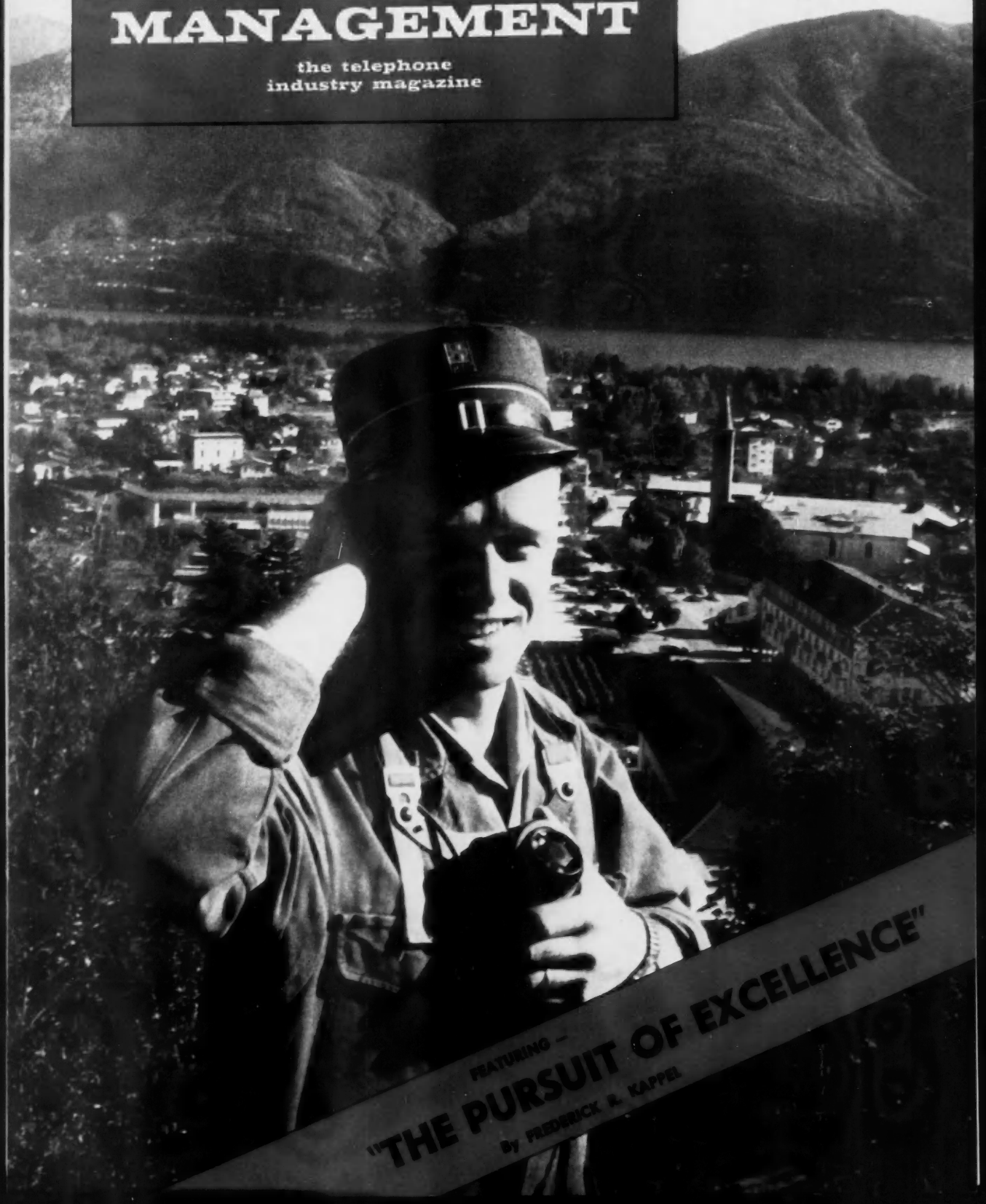
TELEPHONE ENGINEER & MANAGEMENT

the telephone industry magazine

September 1, 1961

50 cents



FEATURING —

"THE PURSUIT OF EXCELLENCE"

By FREDERICK R. KAPPEL

Let our "Revenue Men" show you

NEW OPPORTUNITIES FOR MORE DIRECTORY REVENUE

Take a man like

Bill Goodwin...

Bill Goodwin is one of our "Revenue Men" in St. Joseph, Missouri.

Just recently, he celebrated his tenth anniversary with General Telephone Directory Company. He joined us in 1951 as a sales representative in our Erie, Pennsylvania unit, and became St. Joseph Sales Supervisor in 1957.

Bill is a man who likes action. In high school, he was a star member of the basketball and football teams, and played in the band . . . drums, of course. In 1940, months before the war began, he joined the U. S. Army. Platoon Sergeant Goodwin's overseas action included the invasion of Sicily and Italy.

Naturally, you'd expect Bill to be a live wire in community affairs. He's a member of the Elks, VFW and holds a Recognition Award from the American Legion for his services as a Post Commander. His family claims the rest of his time.

Bill is typical of the "Revenue Men" who work for General Telephone Directory Company . . . and for you. They're an asset to any community.

Are you keeping pace with the trend of increased directory revenue? The potential is enormous. You can't afford *not* to keep pace.

The revenue you earn from a well-sold, well-published directory can give you the highest net profit of any service you sell. Little or no expense is charged against it. And directory profits can make a hefty contribution to total net earnings.

Our "Revenue Men" are trained to help you exploit the rich potential of directory revenue. Backed by our Complete Directory Service Plan, they work with market-tested procedures to tap every source of revenue: local, regional and national.

May we show you a plan tailored to fit your needs? No obligation, of course. Just call or write.

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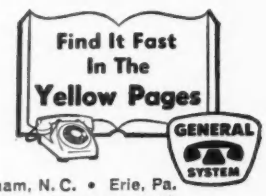
VAnderbilt 7-6111



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TE&M's FRONT COVER:—In Ticino Canton, the "sunroom" of Switzerland, Marco Giovannini works as a telephone cable splicer. Cover photo shows Marco using a test set to match cable pairs. In background, Lake Maggiore flows into Italy, only six miles away.—(Photo from "195 Magazine.")

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ALCOA OUTDOOR BOOTHS SAY "CALL RIGHT NOW," AND MORE PEOPLE DO!

In Florence, Kentucky, Consolidated Telephone Company reports:

"*All* our outdoor booths are aluminum . . . most of them Alcoa's!" says Mr. G. B. Foscue, president of Consolidated Telephone Company, Florence, Ky. "We believe we have increased revenue by installing outdoor aluminum booths, and we get many favorable comments regarding their appearance and convenience. Vandalism is no worry, either.

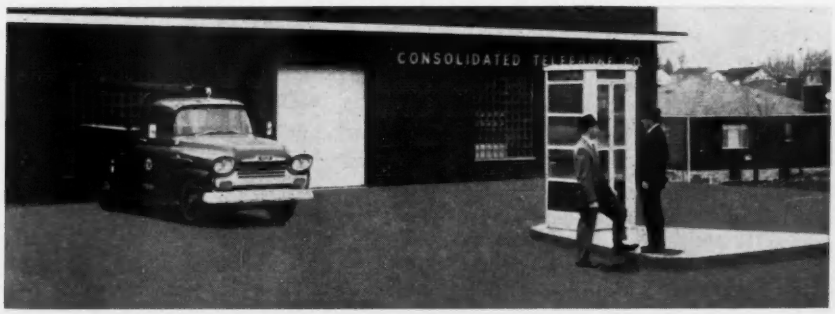
"We have no maintenance problems with Alcoa Aluminum booths," Mr. Foscue states. "Easy to clean and there's plenty of room, good lighting and we like the attractive appearance."

Mr. Foscue is but one of many independent telephone company officers who find solidly built Alcoa® Aluminum outdoor booths resist wear and tear. Alumilite* finish stays bright and clean. Aluminum won't rust . . . defies corrosion. Doors don't stick or warp out of shape, even after years of constant use—thanks to sturdy Alcoa Aluminum Extrusions.

For more information about Alcoa outdoor booths—and the new Alcoa "compact" booth—call your telephone supply jobber. Or write: Aluminum Company of America, 1781-J Alcoa Building, Pittsburgh 19, Pa.

World-wide sales through Alcoa International, Inc., 230 Park Avenue, New York 17, N. Y.

*Trade Name of Aluminum Company of America



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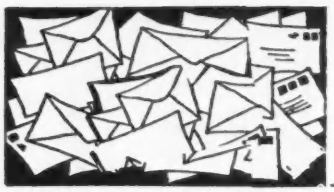
For exciting drama watch "Alcoa Presents" every Tuesday evening—ABC-TV



LETTERS to the editor

"Glad You Liked It"

To The Editor: — "We are forwarding copies of our reprint of your editorial 'You Can't Do It All With Inventions.' The item was distributed to our 6,000 employes in North Carolina."

R. H. Jackson,
North Carolina Public Relations Mgr.,
Southern Bell Tel. & Tel. Co.
Charlotte, N. C.

"We Like You, Too"

To The Editor: — "As I personally have very limited experience in the telephone operations and administration field, I find your Catalog Directory an excellent source of information and use it for a self-education aid. As in my field, we often deal with technicians of telephone companies and other communications agencies and it is a good public and industrial relations policy . . . to try to keep current and abreast of the technological advances in this line . . .

"I have loaned my copy of the 1961 Catalog Directory to the Base Communications Officer, who like myself is a novice in the Communication-Electronics field. I often loan my copies of TE&M magazine to others in my section when articles I feel would be of interest to them appear.

"I find 'Traffic Lights' a most helpful feature in your magazine. I especially enjoyed Mr. D. A. Perigo's 'Letter to a Potential Operator' in your April 1, 1961 issue. I had several of our base switchboard operators read this article. Our Chief Operator, Mrs. Barbara Ross, agreed with the article 100%.

"Being in the military service, I find that the 'Independent' and small communications concerns are not advertising their contributions to National Defense as much as they should. If one of the major companies gets a contract to supply communications services for a military installation or defense project, they waste no time in letting the public know about it. This is bad 'negative' public relations for the small Independents as the layman-taxpayer will assume that these companies can not or will not supply the needs of our country. This results in a false concept and a wrong 'corporate image' of these small concerns. Of course, the small companies may not be able to match the advertising and public-relations budget of the Bell System, but nevertheless they contribute their share — and they should 'Blow Their Own Horn' about it.

"This letter is actually comments on both your Catalog Directory and your magazine. I especially agree with L. A. Gritten (Industry Notes — April 1, 1961 TE&M) 'This magazine offers all-around general education of marketing to our business."

T/SGT Henry E. Price,
Base Communications Office,
Kinchelee AFB, Michigan.

"An Outstanding Job"

To the Editor: — " I have had an opportunity to review in detail your special telephone marketing issue published under the date of July 15, 1961. I would like to take this opportunity to congratulate you on what I consider to be an outstanding job of covering the importance of marketing to the telephone industry and for giving direct assistance to all the telephone people in understanding the broad concept of marketing. It seems to me that one of the most prevalent problems that we have is the result of a very narrow view toward marketing, even to a point of considering any kind of selling effort as serving the function of the broad marketing concept. The serious possibility of inroads being made on our traditional market by our competition makes it mandatory, I believe, for all of us to understand the broad meaning, interpretation and application of marketing to our business.

"Mr. Gritten's comments under 'Industry Observations' concerning the error of the word 'monopoly' when applied to the telephone business was also most timely, for it seems to me that we must alert our customers as well as our employes to the reasons why we are changing from our traditional attitudes and approaches.

"I also feel that your editorial, 'Marketing — Key to the Future' did a real service to the independent telephone industry by clearly defining the competitive situation as it exists today. I am always looking for valuable tools to help solve this marketing problem throughout our System and your publication will, I can assure you, get broad distribution."

R. Parker Sullivan,
Vice President — Marketing & Sales,
G. T. & E. Service Corp.,
New York City

"Here's An Idea"

To The Editor:—"The other week we ran across the following in use by one of our P.B.X. customers, Mennonite Central Committee, Akron, Pa., which we think is an excellent idea and deserves to be shared with others:

—"The cost of dictating a letter, having it transcribed, filed and mailed is expensive. It has been said that today's office cannot mail a letter under 75 cents. By comparison, a long-distance call may actually be cheaper. Try figuring it out yourself!'

"The cost of producing letters will vary throughout the nation. 'The idea is sound and may be even more appealing in other areas."

Willard Hershey,
General Accounting Manager — Plant
Denver & Ephrata Tel. Co.,
Ephrata, Pa.

"Thanks to L. A. Gritten"

To the Editor: — "Our warm thanks to all concerned for Mr. L. A. Gritten's kind words in your August issue about our little book, 'Glory by the Wayside.'

"We have had many fine notices on this piece, but hardly another that says so much so well and so briefly. Such writing is done with the heart as well as the head. Please tell Mr. Gritten for me that I think his grade of prose should be adorning the best periodicals in the land.

"Being something of a spare-time writer myself, though, I know—as he doubtless does—that not all periodicals are as 'free press' today as TELEPHONE ENGINEER."

Harry J. Owens,
R. R. Donnely & Sons Co.,
Chicago, Ill.

for the right number in line and drop wire insulation...

Monsanto Polyethylene compounds MPE 12 and MPE 11302 help make line and drop wire insulation economical to use and maintain because they impart superior weather-aging characteristics, good abrasion resistance, and resistance to fatigue, insuring long service life. MPE 12 and MPE 11302 contribute to excellent appearance—smooth surface, good gloss, and excellent carbon black dispersion.

Both offer fast extrusion rates. You can be sure of product uniformity because of Monsanto blend to blend uniformity. These resins impart good physical and electrical properties, meeting all applicable A.S.A. and IPCEA specifications.

Monsanto Polyethylene formulations are based on long experience in supplying the specialized needs of the Wire and Cable Industry. MPE 12 and MPE 11302 are but two in Monsanto's range of polyethylene resins developed for wire insulation. For more information, write to Monsanto Chemical Company, Plastics Division, Room 827, Springfield 2, Mass.

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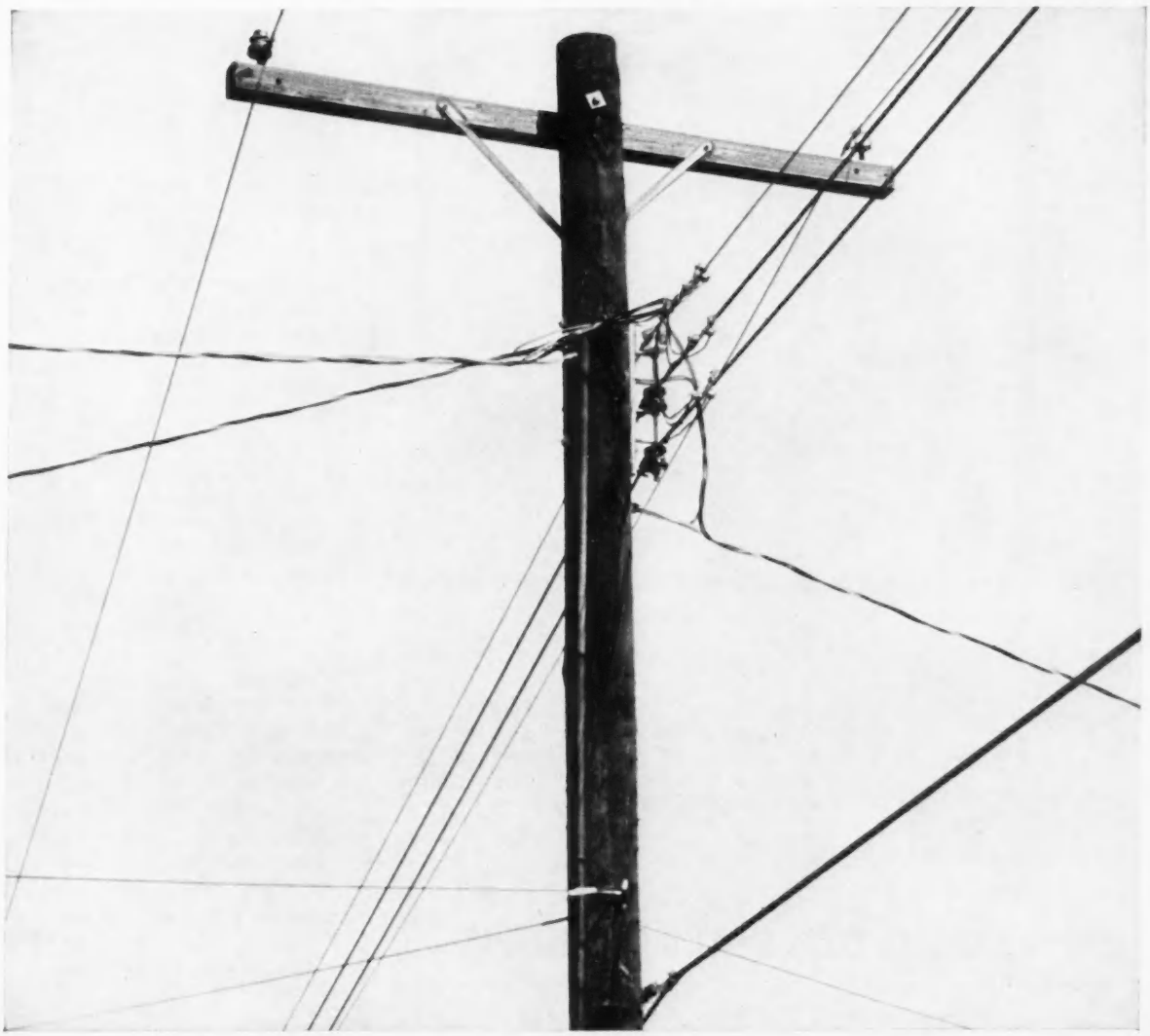

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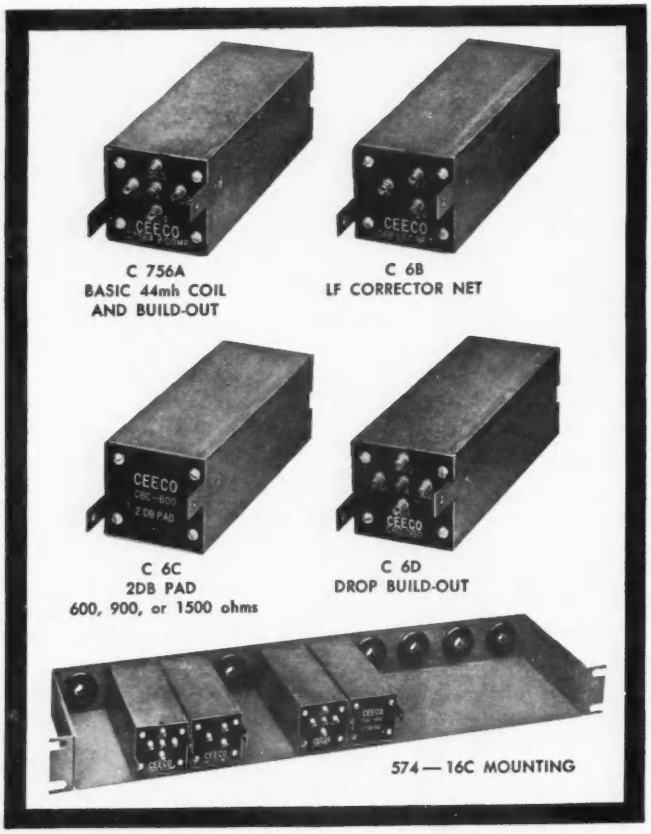
IMPEDANCE COMPENSATORS

CEECO impedance compensators and accessories are available for balancing lines and offices to meet VNL requirements. Plug-in construction provides flexible and economical application.



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With over 30 years experience, CEECO has extensive knowledge in the engineering and manufacture of telephone plant. Our skills and facilities are available to help you meet special requirements. Engineering inquiries are invited.

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coming CONVENTIONS

TENNESSEE Tel. Assoc., Hermitage Hotel, Nashville, Tenn., Sept. 6-7.

WESTERN RURAL Tel. Assoc., Portland, Oregon, Sept. 7-8, 1961.

ARKANSAS Tel. Assoc., Arlington Hotel, Boise, Ark. Sept. 11-12.

ROCKY MT. Tel. Assoc., Owyhee Hotel, Boise, Sept. 13-15.

GEORGIA Tel. Assoc., Corsair Motel, Jekyll Island, Ga., Sept. 14-15.

MICHIGAN Tel. Assoc., Pantlind Hotel, Grand Rapids, Mich., Sept. 19-21.

NEVADA Tel. Assoc., Stockmens Hotel, Elko, Nevada, Sept. 19-21.

NEW ENGLAND Tel. Assoc., Poland Springs Hotel, Poland Springs, Maine, Sept. 24-27.

WEST VA. Tel. Assoc., Oglebay Park Hotel, Wheeling, W. Va., Sept. 26-27.

USITA CONVENTION, Conrad Hilton Hotel, Chicago, Ill., Oct. 8-11.

SOUTH CAROLINA Tel. Assoc., Clemson House, Clemson, S. C., Oct. 23-24.

VIRGINIA Tel. Assoc., Roanoke Hotel, Roanoke, Va., Oct. 26-27.

OKLAHOMA Tel. Assoc. Skirvin Hotel, Oklahoma City, Okla., Nov. 8-9.

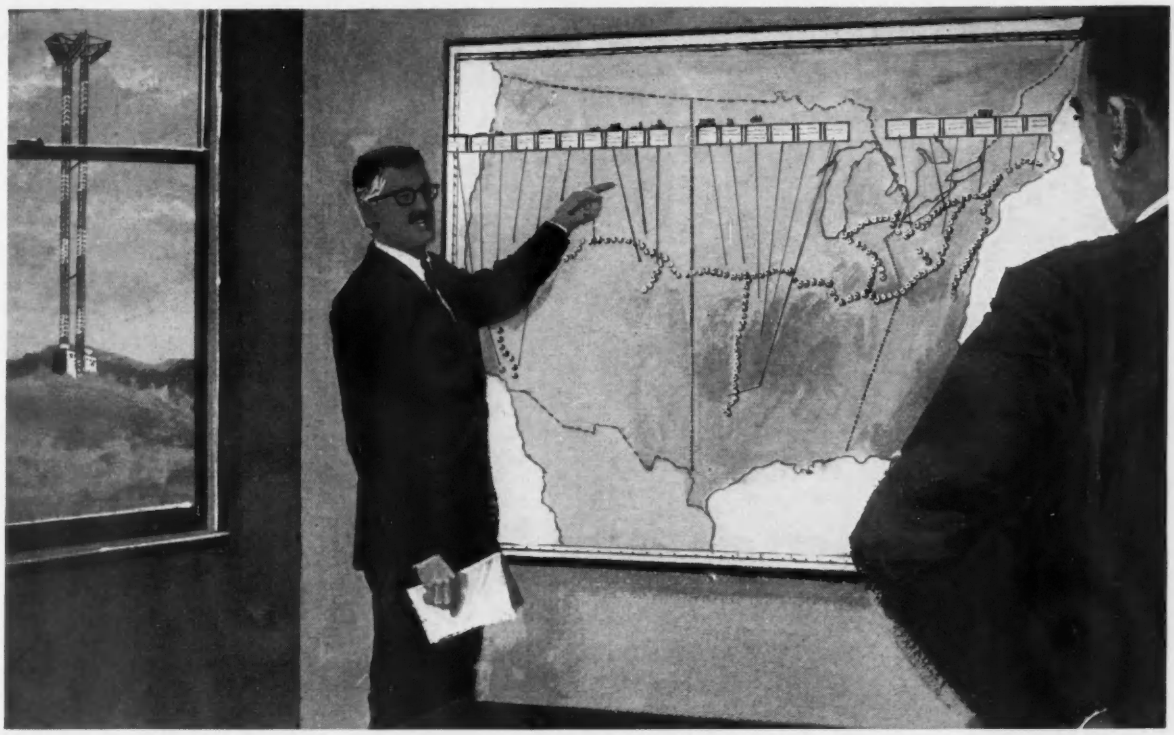
ALABAMA-MISSISSIPPI Tel. Assoc., Thomas Jefferson Hotel, Birmingham, Ala., Nov. 11-13.

FLORIDA Tel. Assoc., The Carillon Hotel, Miami Beach, Fla., Nov. 26-28.

NORTH CAROLINA Tel Assoc., Carolina Hotel, Pinehurst, N. C., Dec. 4-5.

KENTUCKY Tel. Assoc., Phoenix Hotel, Lexington, Ky., Mar. 6, 1962.

TEXAS Telephone Assoc., Sheraton-Dallas Hotel, Dallas, Texas, March 11-13, 1962.



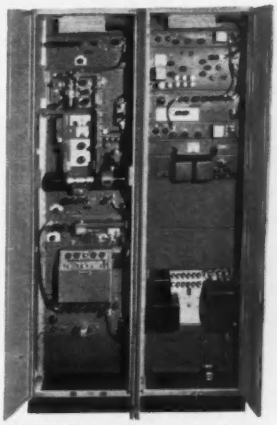
Introducing the RCA MM-600 Microwave for high density, long-haul systems

New RCA MM-600 Microwave Equipment has been designed to meet the exacting transmission requirements of Common Carriers. Operating in the microwave band of 5925-6425 mc, it will carry 600 voice channels or an equivalent video signal for distances in excess of 3000 miles.

This new equipment will be used by Western Union Telegraph Company for their new Transcontinental Microwave System consisting of over 200 stations. This gigantic communications complex will provide facilities for data handling, facsimile, telegraph, television and other services.

The MM-600 meets or exceeds the CCIR/CCITT performance standards for International telephone and TV services. A controlled baseband spectrum up to 10 mc is available for other video applications. Standard r-f channel allocations fully coordinate with the Bell TH system and other allocations can be provided to meet individual requirements. Baseband combiners and switches are available to provide either diversity or fall-back circuit protection. Service Channel and Supervisory Equipment is engineered to meet individual system requirements. Continuous status reports from each station are transmitted to the control stations by a computer type code of high security.

The MM-600 uses a conservatively chosen combination of solid state and vacuum tube devices to insure top performance and long-term stability. A newly developed traveling wave tube using a replaceable glass envelope is used in the transmitters for long life and low replacement cost.



New RCA MM-600 Microwave Equipment

Send for complete information on this important product that combines RCA reliability and high capacity long-haul communications.

RCA®

The Most Trusted Name in Electronics

RADIO CORPORATION OF AMERICA

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Building 15-5, Camden 2, N. J.

☐ Please send me data sheet on RCA MM-600.

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COMPANY_____

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CITY_____ ZONE_____ STATE_____

most promotable phone...
most promotional support

Cinderella

...by ITT KELLOGG

HERE'S OUR SPECIAL OFFER TO HELP YOU SELL

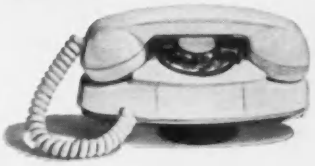
BACKED BY POPULAR DEMAND

You buy just 6 phones...

6 Cinderella phones, one of each color (rose pink, aqua blue, light beige, light gray, white, sea green) at their regular prices.

WE GIVE YOU...

CINDERELLA DISPLAY TELEPHONE. Helps call attention to your Cinderella phones. For your windows or business office. "Dummy" shell complete with handset. WORTH $5.00, YOURS FREE!



REVOLVING CINDERELLA DISPLAY TELEPHONE. Attention getting display phone revolves for 30 days on ordinary flashlight batteries. Needs no additional wiring, plugs. WORTH $8.00, YOURS FREE!

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Everything you need for your own promotional program:

SELLING TIPS. Down to earth discussion of your markets, lists most likely prospects... how to get full benefit from all materials in the kit.

INVOICE INSERTS AND FOLDERS
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NEWSPAPER AD MATS

DISPLAY IDEAS FOLDER. Clear, crisp ideas for your window and business office displays.

OFFER LIMITED. ORDER TODAY!

Don't miss out on the extra sales, the extra revenue you can enjoy from the Cinderella . . . it's the most promoted, most promotional telephone design in the industry. You simply order 6 phones and we give you the display telephone, revolving phone, and complete kit to help you sell Cinderella.

Call your ITT Kellogg representative or the regional office nearest you . . . and call today.

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TEXAS: 1359 Motor St., Dallas 7, Texas, RIverside 5-5191.

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9600 St. Lawrence Boulevard, Montreal 12, P.Q., Canada

NEWSLETTER
TELEPHONE INDUSTRY

Prepared By The Editorial Staff of TELEPHONE ENGINEER and MANAGEMENT

ON THE 1st OF EACH MONTH ★ ON THE 15th OF EACH MONTH

DEAR SIR: September 1, 1961

ABOUT 75% OF NATION'S HOUSEHOLDS HAD TELEPHONE SERVICE IN MARCH, 1960, CENSUS BUREAU REPORTS IN TABULATION OF CURRENT POPULATION STUDY DATA . . . About 75% of the nation's households had telephone service in March, 1960, compared with 73% two years earlier, U. S. Bureau of Census reported last month, in a tabulation of material assembled in connection with its current population survey. Telephone service availability ranged from about 45% in lowest income group, under $1,500 a year, to about 95% in the higher income categories, $10,000 & above, bureau reported. Northeastern states had highest proportion of households with telephones, 82%, & South had lowest, 63%, it was reported. Lowest proportion of households in any geographical area covered in study was in rural areas of South.

Bureau pointed out that data in report is based on sampling, & therefore is subject to sampling variations. Current population survey is spread over 333 sample areas in every state & District of Columbia. Data on availability of telephones were transcribed for about 26,000 representative households, or about 75% of occupied households included in March, 1960, survey. Data included in report covered solely whether or not a household has telephone service, & no report was made on type of service, number of telephones in household, or similar information.

Census reported that 66.9% of rural households surveyed had service, compared with 79.2% of urban residences. Within standard metropolitan statistical areas—ordinarily, a county or contiguous counties including a city of 50,000 or more—77.6% of households in central cities had telephones. Proportion was highest for suburban areas, 86.5%. Rural nonfarm establishments showed 62.7% with telephones, while rural farm households were 50.3% telephone-equipped.

Among households of married couples living together, 78% had telephones, compared with 69% of households whose head was widowed or divorced, & 63% of households headed by single persons. About 58% of households which had moved during past year had telephones, whereas 79% still living in same house as a year earlier had service. Copies of report, series P-20, No. 111, are available from the Bureau of the Census, Washington, D.C. or Department of Commerce field offices ,at 10 cents each.

WESTERN UNION PLANS TO OFFER NEW PRIVATE WIRE SERVICES; VOICE CONTACT INCLUDED FOR FIRST TIME . . . Look for early announcement by Western Union Telegraph Co. of plans to offer new private wire services to compete with services recently offered by American Telephone & Telegraph Co. These plans include availability for first time of voice communication over private wire systems Western Union leases to business firms & government agencies.

Formal announcement of the plans has not been made because Western Union is currently in registration in connection with pending common stock offering. Information on plans is contained in preliminary prospectus covering stock offering. It reads: "The company has formulated plans designed to enable it to offer, in competition with the new service offerings of AT&T, private wire services which the company is not now in a position to furnish. Agreement has been reached with AT&T to negotiate modifications of existing contracts for the leasing of circuits which would enable the company to use facilities leased from Bell System companies in furnishing private wire services in additional areas of telecommunications

Please turn to page 14

Mr. Speaker!

Is your appeal for legislative fairness falling on deaf ears? Better look into USITA!

→ Why? Independent telephone companies who are members have full-time representation in the highest councils of the Nation.

→ USITA also serves as a representative of the industry in matters of toll compensation. It maintains liaison with government agencies to promote a better understanding of your problems, your needs. It provides authoritative information on every technical and financial matter affecting your operations. It is the keystone of Independent telephony—the force upon which Independent telephone companies depend for things they cannot do by themselves.

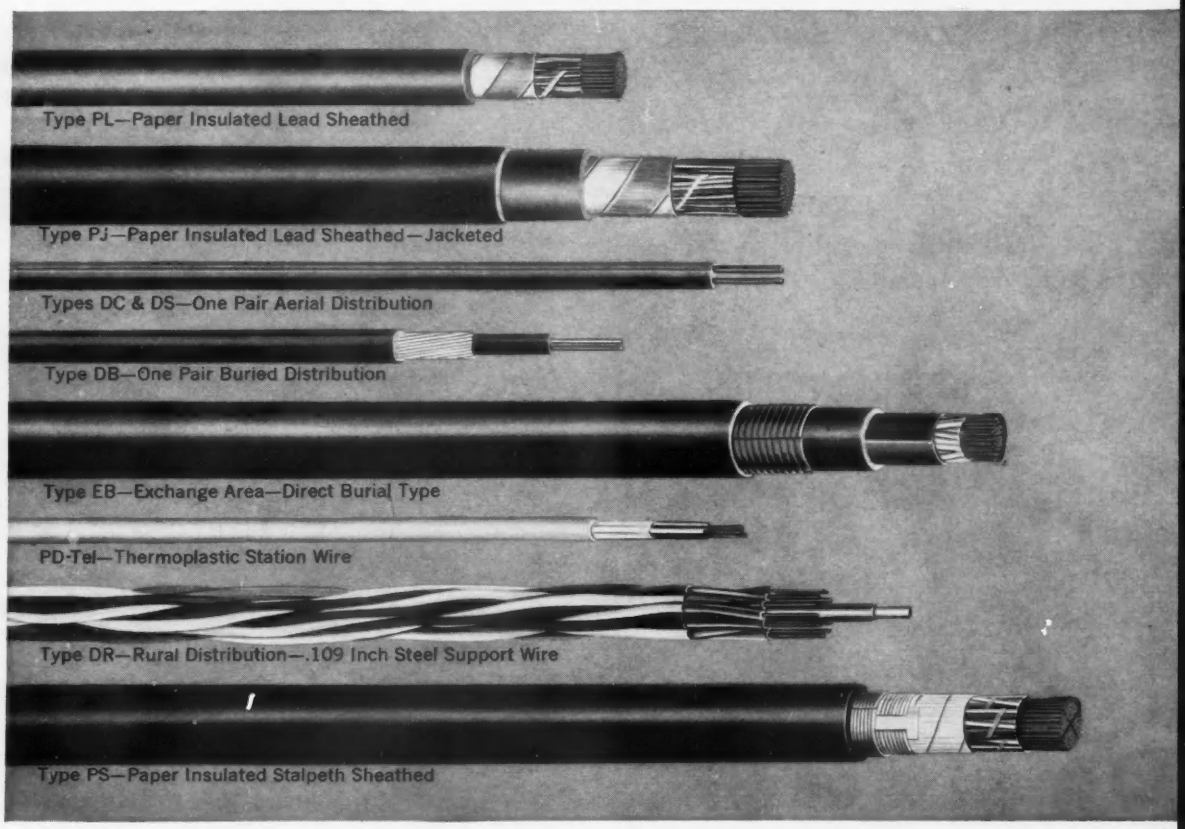
→ By taking part, every Independent—regardless of size—has the strength of a $4,000,000,000 business behind it.

→ Your company can become a USITA member for a very nominal sum (annual membership dues are tax deductible). For details, just telephone the Association's Washington offices COLLECT (National 8-6512) or write: United States Independent Telephone Association, 438 Pennsylvania Bldg., Washington 4, D. C.

UNITED STATES INDEPENDENT TELEPHONE ASSOCIATION

USITA keystone of independent telephony

PRODUCT DEPENDABILITY IN EVERY PHELPS DODGE


Type PL—Paper Insulated Lead Sheathed
Type PJ—Paper Insulated Lead Sheathed—Jacketed
Types DC & DS—One Pair Aerial Distribution
Type DB—One Pair Buried Distribution
Type EB—Exchange Area—Direct Burial Type
PD-Tel—Thermoplastic Station Wire
Type DR—Rural Distribution—.109 Inch Steel Support Wire
Type PS—Paper Insulated Stalpeth Sheathed

Throughout the manufacture of Phelps Dodge telephone wire and cable, product dependability is given major attention.

Phelps Dodge builds reliability into every cable by using the finest materials and by applying years of experience in the research and development of communications cables to control the quality of these materials during fabrication. The result is a complete line of wire and cable with assured dependability that helps reduce maintenance costs and provide longer service life.

Phelps Dodge will gladly help you select the correct construction to fit your particular requirements. Just call your nearest Phelps Dodge sales office.

IS THE FIRST CONSIDERATION TELEPHONE WIRE AND CABLE!

Type IN—Interior Cable
Type PA—Paper Insulated Lead Sheathed—Armored
PD-Tel—Paralleled Figure 8 Drop Wire
PD-Tel—Polyethylene Insulated Bridle Wire
Type EA—Exchange Area—Aerial Type
Type RL—Rubber Insulated Lead Sheathed
Type ED—Exchange Area—Duct Type
PD-Tel—Paralleled Reinforced Drop Wire

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SALES OFFICES: Atlanta, Birmingham, Ala., Cambridge, Mass., Charlotte, Chicago, Cincinnati, Cleveland, Dallas, Dayton, Denver, Des Moines, Detroit, Fort Wayne, Honolulu, Houston, Indianapolis, Jacksonville, Kansas City, Mo., Los Angeles, Memphis, Milwaukee, Minneapolis, New Orleans, New York, Philadelphia, Pittsburgh, Portland, Ore., Richmond, Rochester, N. Y., San Francisco, St. Louis, Seattle, Tampa, Washington, D. C.

P D MINE TO MARKET

(concluded from page 10)

including voice alone and alternate record-voice (i.e., combinations of voice with teleprinter, facsimile, data and other record services). These contract modifications, together with the facilities being provided by the company's plant expansion program, would broaden the range of services the company can offer the public."

As new service to be introduced by Western Union in 1962, prospectus lists broad-band switching. This, it says, is new record & voice service, which will provide customer-to-customer voice band connection that can be used for transmitting voice, data, facsimile or any other type of digital communications. Prospectus adds that this service is expected to produce substantial new revenues.

TELEPHONES, INC. FILES REGISTRATION CERTIFICATE . . . Telephones, Inc., an Independent telephone company with offices in Chicago, has filed Registration Statement with Securities & Exchange Commission covering proposed offering of 250,000 shares of common stock. The company is holding company with eight operating subsidiaries which provide telephone service to approximately 31,000 customers in Ky., Ill., and Ia.

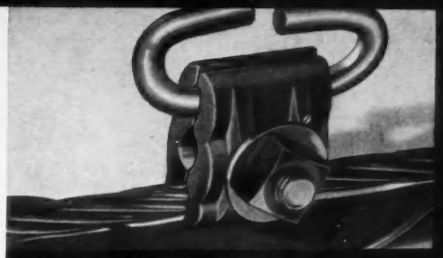
Of the 250,000 shares to be offered, 200,000 shares are being sold for the company account & the remaining shares are being offered for certain shareholders. Hayden, Stone & Co., and McCormick & Co. will head the underwriting group. Proceeds from the sale of stock by the company will be used to retire debt & to acquire the outstanding stock & assets of eight additional operating companies serving areas in Ill., Ia., and Kan. These acquisitions will expand number of customers served by over 35%. One of companies to be acquired, Northern Kansas Tel Co., furnishes communication facilities for the Air Force Atlas Missile Complex near Topeka, Kans.

DATA FOR YOUR FACTS FILE . . . Personal income in June, gaining $3.5 billion over May to seasonally adjusted annual rate of $416.5 billion, exceeded last October's pre-recession peak by $10 billion, largely due to higher wages & salaries. In the first half year, personal income at annual rate of $409 billion was $9.5 billion above same six months of 1960. Gross national product reached $504.5 billion & national income $417 billion in 1960, both exceeding all previous annual totals . . . U. S. women are having more children in the first few years of marriage than in 1930's. Trend is toward larger proportion with two or three children & smaller proportion with one child or none. About 11 percent of women in their late 30's in 1959 had never borne a child compared with 19 percent in 1950 . . . Six thousand more houses were started in June than in May with work beginning on 136,900 units. Normally there is May-June drop. Starts of 131,400 privately-owned housing units in June were 3 percent above May. This was at seasonally adjusted annual rate of 1,374,000--6 percent above May & 7 percent above June 1960 rate . . . Number of U. S. households has been increasing 700,000 to 900,000 annually. The 50 states now have about 53.3 million households, of which some 48 million are white, 50 million urban or rural nonfarm, & less than 4 million rural farm.

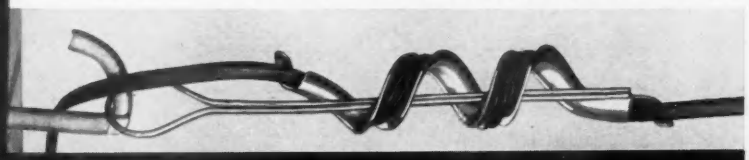
DEATHS OF INDUSTRY MEMBERS . . . Leon L. Roome, owner, Halsey (Ore.) Tel. Co., died June 22 following heart attack . . . Paul C. Thomson, 68, retired employe of General Telephone Directory Co., died July 20 at Ocean City, N. J. He was associated with Loomis Advertising Co. for over 20 years prior to joining the General Telephone Directory Co. in 1956. At the time of his retirement in 1958 Mr. Thomson was sales supervisor in Bloomington, Ill. . . . E. L. Klingel died July 14 in St. Paul, Minn. He was active in telephone research & equipment for 61 years & held several telephone patents . . . Mrs. Kendall, wife of Dick Kendall of Mankato (Minn.) Tel. Co. died July 24.

KEARNEY TELEPHONE ACCESSORIES

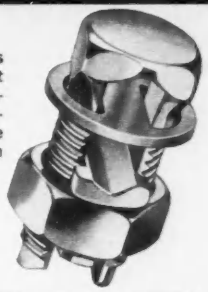
CONCEIVED IN THE FIELD... PROVED IN SERVICE



SPAN BRACKETS provide one or more service connections from knobs or hooks at points between poles. They fasten to the messenger and may be used on lashed or ring supported cables.



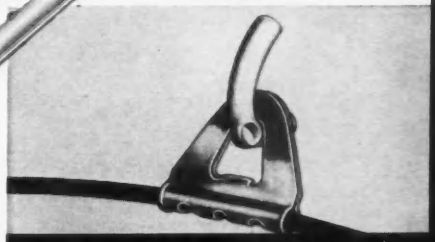
SNUB-R-GRIP DROP WIRE GRIP provides an efficient, free-swinging tie for drop wire attachments to poles and buildings. Snubbing action is greater than rated strength of the conductor because of spiral grip.



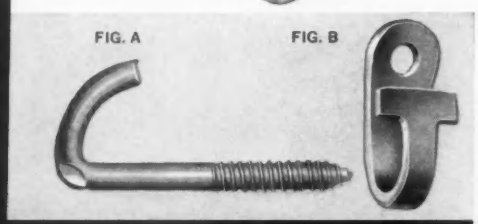
CON-NEC-TITE Solderless Connectors, for bridge or test connections. Assure low-resistance. Precision made for repeated use. Bodies are bronze or brass or plated for use with iron wire.

CLAMP-TITE GROUND CLAMP... will not loosen under vibration, expansion, contraction. One-piece copper construction has spring action for constant clamping force.

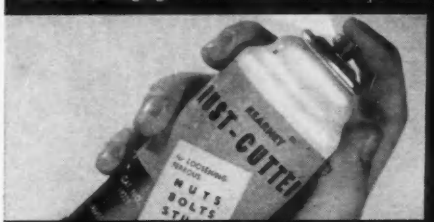
FULL-VUE GUY GUARDS in either All-Round or Half-Round style. High-strength aluminum alloy is easily visible at night. Weight is one third that of steel but is equal in strength making for easy installation. Guard clamps, will not turn on the strand.



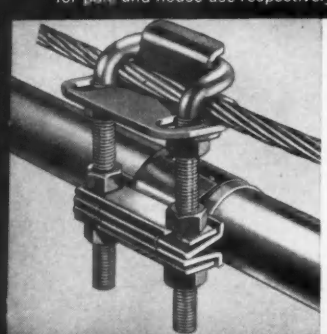
DROP WIRE CLIPS... stainless steel... for use with either parallel or twisted pair drop wire for intermediate fastenings on straight line drop extensions... are designed to grip tightly without damaging.



HOUSE AND POLE HOOKS: Fig. A is a standard house hook, ideal for hollow tile walls and similar construction. "B" is a drive hook which has wide application and is made in large and small sizes for pole and house use respectively.

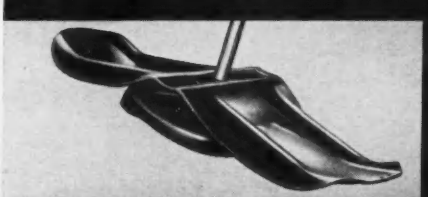


RUST-CUTTER loosens ferrous and other corroded hardware in seconds... atomized mist reaches otherwise inaccessible rust.



GRADE CLAMPS maintain proper spacing between cable and messenger, regardless of size of the cable ring used. Stainless steel band binds cable to clamp preventing injury to the sheath and permits complete reconditioning by inserting a new band.

AIRSEAL... seals out moisture, corrosion, oxidation... will not deteriorate underground... is not affected by temperature. Dielectric strength exceeds 280 volts per mil. Easily applied; just mold it with the hands ... it bonds itself. It's easily removed and does not stick to hands or gloves.



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Mostly About People You Know

Boothby Elected Director of Commonwealth Tel. Co.

THE ELECTION of Willard S. Boothby to the board of directors of Commonwealth Telephone Co., Dallas, Pa., has been announced by A. J. Sordoni, Jr., president. Boothby is senior partner in charge of the Pennsylvania Division of Eastman Dillon, Union Securities & Co., Philadelphia.

In Philadelphia, he is also a member of the Committee of Seventy, former Governor of the Municipal Bond Club and president of the Bond Club. Directorships include Philadelphia's Cornell and Lehigh Clubs, the Second Iona Corporation, First Toby Corporation, and Third Thunderbird Stations.

Commonwealth Telephone Co., third largest of Pennsylvania's Independent telephone companies, serves more than 77,000 subscribers in a 4600 square mile area, principally in northeastern Pennsylvania.

Controllers Institute Names District Officers

THERON L. ACKERMAN, vice president and comptroller, The Mountain States Telephone & Telegraph Co., Denver, Colo., has been elected president of the Rocky Mountain Control of the Controllers Institute of America.

At the annual meeting of the Institute's District of Columbia Control, Charles E. Sener, Jr., assistant vice president, The Chesapeake & Potomac Telephone Companies, was elected president. Calvert C. McCabe, Jr., comptroller of the company, was named a director. The new secretary of the Control is John Howzdy, treasurer, Aeronautical Radio, Inc.

James A. McCollum, vice president and comptroller, Southwestern Bell Telephone Co., was chosen vice president of the St. Louis Control, and Alexander L. Stott, controller, American Telephone & Telegraph Co., was similarly honored by the New York City Control.

The following have been named directors of Institute Controls in their respective areas: J. Gardner Franklin, comptroller, The Chesapeake & Potomac Telephone Co. of Maryland, Baltimore; Arthur P. Heywood, auditor, Pacific Telephone Northwest, Seattle; Robert V. Jones, vice president and comptroller, New England Telephone & Telegraph Co., Boston; S. Alden Pendleton, assistant comptroller, International Telephone & Telegraph Corp., New York (Newark Control); Edward J. Powell, vice president and comptroller, Puerto Rico Telephone Co., San Juan (Puerto Rico Control); John B. Renwick, controller, General Telephone Co. of Florida, Tampa (Florida Control), and J. Edward Winters, The Bell Telephone Co. of Pennsylvania, Philadelphia.

Established in 1931, the Institute is a non-profit management organization of controllers and finance officers from all lines of business — banking, manufacturing, distribution, utilities, transportation, etc. The total membership exceeds 5,200.

Gen. Tel. of Ky. Names D. A. Redman, Vice Pres.

DONALD A. REDMAN, controller of General Telephone Co. of Kentucky, Lexington, has been elected to the additional position of vice president — revenue requirements. In the additional position, Redman replaced Ernest F. Mercer, who has resigned.

D. A. REDMAN, Vice Pres., Revenue Requirements, Gen. Tel. of Ky.

A native of Indiana, Redman was graduated from Gannon College, Erie, Pa., in 1952 with a Bachelor of Science degree. He started his telephone career in 1947 in the treasury department of General Telephone Co. of Pennsylvania at Erie. He subsequently held positions in the secretary-treasury and accounting departments of that company. Redman transferred to General Telephone Co. of Kentucky in 1956 as assistant controller. He was elected controller in 1960.

Associates Honor Clare E. Williams

CLARE E. WILLIAMS, president of General Telephone Co. of Ohio went to a restaurant near Marion recently to attend what he thought was to be a friend's wedding anniversary celebration. Instead, he got the surprise of his life. There to greet him were some 41 company officials, associates and their wives.

The occasion — a surprise celebration for his 35th year with General Telephone. Top official there was Donald C. Power, chairman and chief executive officer of General Telephone & Electronics Corp., New York City. Earlier, Williams had marked the milestone in his career without much fanfare. But company officials planned the celebration, keeping it a secret.

Power, who flew in from New York especially for the event, was chief speaker. He also presented Williams with a service pin.

In his talk, Power pointed out that General Telephone Co. of Ohio, like the General System, has grown tremendously in recent years.

"This progress," he remarked, "can be largely credited to outstanding officials such as Mr. Williams."

Since Williams became its president in 1950, General of Ohio has almost tripled in size. Today it is Ohio's largest Independent phone company, 8th largest in General System, and 10th largest in the country.

Williams started in his telephone career in 1926, with the firm's sister company in Pennsylvania. He joined General of Ohio in 1933, holding

NEW! EXTRA LONG RECEIVER Koiled Kords* NOW IN COLOR

Extra long receiver KOILED KORDS in color enable you to offer another service to those subscribers who want to move more than four and a half feet from their instruments.

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50 YEARS AGO IN TE & M

■ Under a new organization of the Central Group of Bell Telephone Companies, the Chicago Telephone Co., the Central Union Telephone Co., and the Michigan State Telephone Co. became one operating unit with headquarters in Chicago. The new organization — then the second largest telephone operating unit in the world — served 1,474,202 telephones.

■ TE&M reported that the German telephone girl obtained her job through a civil service exam; was paid about 60 cents a day; worked from 6 a.m. to 10 p.m.; and her salary was increased four cents a day each year until the 8th or 9th year of service. When her salary reached $4.50 per week she stayed at that pay until retired on pension.

■ The old order Dunkards, meeting at Delphi, Ind., decided members could have telephones, and reinstated five members who had been expelled for having telephones installed in their homes.

■ In Hammondsport, N. Y., the Hammondsport Telephone Co. was granted permission to increase its rates to $9 for residence and $12 for business telephones. In Dayton, Wash., Pacific Telephone & Telegraph Co. was requested to reduce rates for business phones to $2.50 and lower the residence rate to $1.25.

■ Ford Motor Co. advertised the Ford Model T Roadster. The 4-cylinder car with full equipment including three oil lamps, horn and tools, cost $680. The ad stated New York Telephone Co. had purchased 65 of the Roadsters for inspection work.

DONALD C. POWER, chairman and chief executive officer of GT&E (left), presents CLARE E. WILLIAMS, president of General Telephone Co. of Ohio, with a pin for 35 years of service.

the positions of district commercial supervisor and division commercial superintendent at Marion.

In 1940, he was appointed division commercial superintendent at Johnstown, Pa., again with General of Pennsylvania. He returned again to Marion in 1946, being named vice president and general manager of General of Ohio. He held that title until being elected president in 1950.

The president's wife, Viola, was presented an orchid corsage by Jack Boyd, marketing & sales manager, on behalf of the management. Mrs. Williams, Mrs. Power, and Mrs. Robert H. Henderson sat at the speaker's table with Power and Williams. Henderson, a vice president of General, served as master of ceremonies.

In attendance were company officers, department heads and members of the company's board of directors. In addition, Power's associates of his Columbus law firm, Power, Griffith & Jones attended.

Stromberg Scholarship Winner Chooses Telephone Work

JAMES R. BURCHETT, winner of the first Stromberg-Carlson engineering scholarship in 1956, has joined the network design group of General Dynamics | Electronics' Telecommunication Division. Jim is the son of the well-known sales representative Vic Burchett who covers Minnesota, North Dakota and South Dakota for the company.

Jim began his work in June, shortly after graduation from the University of Minnesota. He received his Bachelor of Electrical Engineering degree upon completing the five-year course at the Institute of Technology of the Minneapolis school.

His primary responsibility at General Dynamics | Electronics will be the design of networks for electronic circuitry to be used in communication and control systems. The company's leadership in the electronic switching field was one of the major reasons he elected to start his career there.

Jim's father, Victor Burchett, has spent most of his career serving the Independent telephone industry. He

JIM BURCHETT, right, Stromberg-Carlson scholarship winner, discusses design of a carrier filter with his supervisor, PETER J. MAY, at Rochester, New York, plant.

joined the Stromberg-Carlson sales team in 1946 and previous to that had served as manager of several Independent telephone operating companies.

The Stromberg-Carlson scholarship won by young Burchett has been awarded for the past six years to sons of employes. It provides full tuition for students seeking an education in engineering or an allied science.

WHAT'S YOUR STORY?

To keep TE&M's new department — *"Mostly About People"* — going, the editor of TE&M does need your help. So send us stories and pictures of the people in your company who have been promoted, honored, or retired. Send all items to Editor, TE&M, 7720 Sheridan Rd., Chicago 26, Illinois.

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—for more complete, accurate analysis

AIDED by this engineer's guide to practical statistics you can more fully analyze processing, research and other kinds of industrial data. In plain terms it tells you how to apply statistical methods to engineering problems . . . how to correlate data . . . and how to treat experimental factors. Especially helpful, this easy-to-use book explains the technique of drawing the "best" line through data, and of accurately analyzing the variance. And—to round out your working knowledge of statistics—it gives you essential information on probability, theory and frequency distributions. When you have a specific problem in statistical analysis, turn to the clear guidance, detailed examples, and more than 180 quick-reference tables in these pages.

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MODEL	FREQUENCY RANGE	SELECTIVITY	LEVEL FULL SCALE	ACCURACY	TYPICAL FILTER SELECTIVITY
2171	60 Cycles to 4 Kilocycles	30 Cycle or 50 Cycle Filter	−68 to +32dbm	± .5db −80 to +32dbm 300 Cycles to 4 Kilocycles	**30 CYCLE FILTER** 6db— 35 Cycles 60db—250 Cycles
2174A	300 Cycles to 400 Kilocycles	50 Cycle or 100 Cycle Filter*	−68 to +32dbm	± .5db −80 to +32dbm 300 to 400 Kilocycles	**50 CYCLE FILTER**** 6db— 60 Cycles 60db—450 Cycles
SPURIOUS RESPONSE: Below 60db LOW INTERMODULATION: Below 60db POWER REQUIREMENTS: 115 V. A.C.–50/60 Cycles. WEIGHT: 28 lbs.					**100 CYCLE FILTER** (STANDARD) 6db—140 Cycles 60db—900 Cycles

* Including a wider filter and demodulator for monitoring SSB, AM and FM signals.

This instrument utilizes the heterodyne principle with balanced modulation and highly selective crystal filters which achieve the high resolution needed for accurate amplitude measurements of Carrier and Microwave Sub Carrier channels. Direct reading in DBM for 135 and 600 ohm circuits or bridging. Offers fast accurate amplitude measurements throughout the frequency spectrum of 300 cycles to 400 kc. PRICE: $795 F.O.B. RAYTOWN, MISSOURI.

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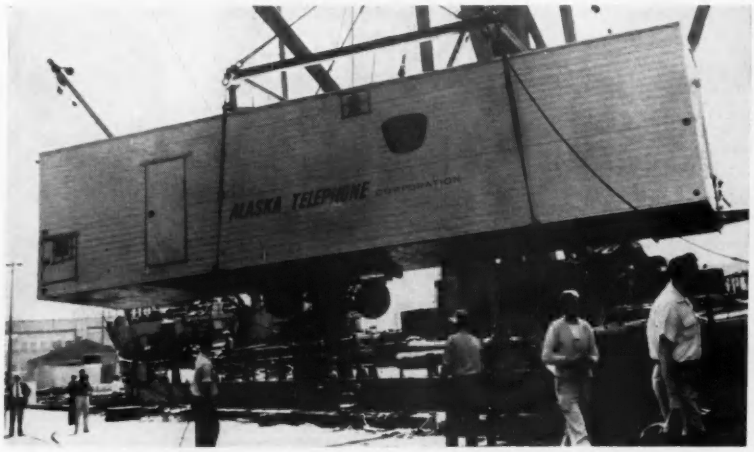
INDUSTRY VIEWS



The largest package mobile dial telephone exchange ever to be shipped by sea in North American Pacific waters has been installed at Haines, Alaska. Manufactured by Leich Sales Corp., the equipment was purchased by Alaska Telephone Corp. Assembled in Seattle, Wash., the $40,000 nine-ton system, which is permanently housed in a specially designed van, left Seattle May 19 on its 1,000-mile water journey up the coast.

JERRY BALL (left), chief engineer of Alaska Telephone Corp., and BERT PROCTOR, president of Proctor & Associates, Bellevue, Wash., inspect "Communications Van" for service at Haines, Alaska.

Executives of 34 Independent telephone companies gathered at Endicott, N. Y., recently to attend an Executives' Concept Course at the IBM Education Center. The course of instruction covered all phases of mechanized accounting and control in the telephone industry, including demonstrations of industry applications on many types of IBM equipment. Presentations were made by D. Fred Growthe, Eastern Illinois Tel. Co.; Kenton O. Hart, Oswego County Tel. Co.; Edward P. Kittinger and Thomas K. McLaughlin, Carolina Tel. & Tel. Co.; and Donald Pearson, Rochester Tel. Co., in addition to IBM staff instruction. John A. Brady, LaFourche Tel. Co., was elected president of the class and presided at the class banquet. Members of the class shown above are: Row One (l. to r.) M. A. PHILLIPS, Belvidere, N. J.; K. O. HART, Fulton, N. Y.; C. F. METZGAR, Norwich, N. Y.; R. A. SPINK, Jr., Harrisburg, Pa.; Miss NORMA A. WELTER, Elyria, Ohio; C. W. CARLSON, Winter Park, Fla.; E. P. KITTINGER, Tarboro, N. C.; T. K. McLAUGHLIN, Tarboro, N. C.; D. F. GROTHE Rantoul, Ill.; Row Two (l. to r.) A. M. NELSON, Chillicothe, Ohio; J. R. YEAGER, Lima, Ohio; L. W. SCHRECKENGAST, Lima, Ohio; C. B. FISHEL, Harrisburg, Pa.; B. FITTS, Winchester, Ind.; B. F. SMITH, Wisconsin Rapids, Wis.; S. S. FANN, Line Oak, Fla.; A. U. WELLENKOTTER, Tomah, Wis.; R. M. LEFFEL, Lima, Ohio; Row Three (l. to r.) J. M. PLAFCAN, Philadelphia, Pa.; A. I. WEISSKOPF, Philadelphia, Pa.; C. A. HENRY, Bellevue, Ohio; W. B. HARDY, Chardon, Ohio; C. C. LEIBY, Ocala, Fla.; P. A. TIMBERLAKE, Corydon, Ind.; V. R. CHESBRO, Ottawa, Kans.; M. M. BUCK, Columbia, Mo.; F. D. VETTER, Sr., Manassas, Va.; G. A. CORUM, Auburn, Ky.; E. H. MARROW, Tarboro, N. C.; Row Four (l. to r.) T. D. ROBERTSON, Chicago, Ill.; C. F. EICHLER, New London, Ia.; J. M. RUTLAND, Brownwood, Texas; J. A. AIGLER, Bellevue, Ohio; R. E. LAWRENCE, Jr., Tarboro, N. C.; V. E. HIX, Scottsbluff, Neb.; R. A. HALL, Norwich, N. Y.; T. L. SELMON, Bucklin, Mo.; R. D. SIMPSON, Russelville, Ark.; J. T. FORD Little Rock, Ark.; J. A. BRADY, Sr., LaRose, Ala.; C. H. TOOL, Washington, D. C.

The Illinois Telephone Association recently completed a series of four district meetings. All meetings were participated in by the staff members of the Illinois Commerce Commission. Shown standing in the photograph (l. to r.): JOHN KISSEL, telephone engineer; AL ULRICH, commission engineer; R. B. THOMAS, chief engineer; ART THORSELL, service engineer; HARRY LEHMAN, supervising accountant. Those seated in the photograph (l. to r.), all directors of the Illinois Telephone Association who attended the Dixon, Ill. meeting, are F. S. COAKLEY, general manager, Dixon (Ill.) Home Telephone Co.; DANIEL A. SCHAEFER, president, DeKalb-Ogle (Ill.) Telephone Co., Sycamore; and president of the Illinois Telephone Association; K. L. SCHROEDER, vice president, Northwestern Telephone Co., Freeport; and DONALD F. ANDERSON, manager, Geneseo (Ill.) Telephone Co.

EDWARD T. McCORMICK (left), president American Stock Exchange, New York City, assists WILLIAM B. HARRISON, president, Independent Telephone Corp., Dryden, N. Y., in reporting first ITC transaction over ticker network.

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There is a simple and easy way to *tell* and *show* telephone men and women of the nation and the world the accomplishments of your company and its employes: — Just send TE&M the pictures and the story of any happening in your company that you believe will be of interest to TE&M readers, and we will do the rest. Address all material to Editor, TE&M, 7720 Sheridan Rd., Chicago 26, Illinois.

"Overdecorated Tree"

"As we take a good look at the whole social security program we can't help but feel that it has the characteristics of an overdecorated Christmas tree that is precariously weaving back and forth. With each new Congress, someone tries to hang some more 'junk' on this tree in the form of so-called addition benefits and amendments." — *Lennox (S. Dak.) Independent.*

"Taxpayers Load"

"The federal government has worked out a system which will insure receipt of immense sums of money from the taxpayers. There are at present no less than 80 separate programs in operation by which bureaucrats of the federal government 'give' part of the costs to states providing the states match this spending by adding more outlays to their own budgets. In addition to 80 programs now in operation, the government has plans to move into new areas." — *Gooding (Idaho) Leader.*

"Dollars"

"The fight today is with dollars not men. The sounder the nation is financially, the louder it can speak to its world neighbors. It must not drain away the substance that symbolizes the nation's system of freedom, enterprise, opportunity and reason for labor." — *Horton (Kans.) Headlight.*

"Faith In Ideals"

"This country wasn't founded nor did it grow to greatness on the basis of leadership that lacked faith in ideals, a willingness to vote for convictions. We doubt that it can long survive if our present lack of faith and conviction continues to spread." — *Mound (Minn.) Pilot.*

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CHANCE ANCHORS
there's one for every need

8-WAY EXPANDING ANCHOR
Slips down a hole no bigger than the base plate. 8 rib reinforced blades expand into solid earth all the way around.

NO-WRENCH SCREW ANCHOR
Pitch-controlled blade goes down fast and adds to holding power. Can be installed by hand.

POWER INSTALLED SCREW ANCHOR
Lets you mechanize screw anchor installation with your power hole-digging equipment. Anchors install in 6 to 8 man minutes.

NEVER-CREEP ANCHOR
Pulls entirely against solid, undisturbed earth. Holds more load than any other type of anchor.

CROSS-PLATE ANCHOR
Install in vertical machine bored holes. Costs much less than "dead-man"--holds more.

ROCK & CONE ANCHORS
Wedge into solid rock and wedge against tamped rock.

CA61-8

A. B. CHANCE CO.
CENTRALIA, MISSOURI
A. B. Chance Company of Canada, Ltd., Toronto

INDUSTRY OBSERVATIONS

By L. A. GRITTEN

Where Billions Forgather

IN 1960, fifty-two companies listed by the New York Stock Exchange had sales or revenues of one billion dollars or more. American Telephone & Telegraph Co. is third on the list with $7,920,500,000, following General Motors ($12,736,000,000) and Standard Oil of New Jersey ($8,695,800,000).

However, AT&T leads the entire list in other ways. It was first in net profits in 1960, with $1,213,000,000. Its payroll, $4,174,000,000, was the highest. (Only General Motors, with a $3,487,100,000 payroll, even approached the AT&T figure). AT&T payrolls amounted to 52.7 per cent of the revenue, another first. AT&T cash common dividend payments, $723,500,000, head the list by a wide margin.

General Telephone & Electronics Corp. is 42nd on the list, with 1960 sales and revenues totalling $1,178,500,000; payrolls $458,000,000; and net profits of $72,400,000.

Pacific Telephone & Telegraph Co. is 45th, with sales and revenues $1,135,900,000; payrolls $528,800,000; net profit $150,800,000. Pacific is second only to AT&T in percentage of sales and revenues applied to payrolls—46.6 per cent.

Big Brother Wanted?

FEW days ago, nine paystation boxes, stolen from outdoor telephone booths, were fished out of the Potomac River at Washington, D.C.

About the same time, we failed to place a call from a telephone booth in a little Idaho city. It is of the modern "no privacy" variety, all metal and laminated glass. It is located a few yards away from a big supermarket, on the parking lot, in plain sight of people in the stores or on the main street. Yet someone had smashed the reinforced glass wall and the handset was a wreck, in two pieces. The floor was a disgusting mess.

Vandalism, theft and fouling of telephone booths is a problem not yet solved. People of a certain type —there must be many—spit and toss litter on the floors, and they scrawl obscenity anywhere they can find a space that will take pencil or lipstick. On occasion, they use the booth as a toilet or, incredible as it may seem, as a "love nest."

We have a suggestion. It sounds like George Orwell's "Nineteen Eighty-four," but it might serve to fight the vandals: In a few selected booths, here and there in each city, install a "television eye" and a loud speaker, concealed in the roof. One may imagine the effect on the culprit, of a voice from the central office test desk booming: "Please do not tear pages out of the directory" or "Kindly stop carving your name on the desk."

Much more important would be the general effect on booth users. If they were never sure they were not under observation, the morons would refrain—and the decent people wouldn't care. Too much "Big Brother"? Perhaps; but we must do something to sweeten our booths.

Hope For The Future

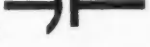
CURRENT Bell System advertisement throws new light on the telephone booth question. It depicts the first "booth," consisting of a blanket that Mr. Watson wrapped around himself and his telephone, while making experiments with Alexander Graham Bell. It implies that

Anaconda offers A **new** standard for the industry: RD-8 and SD-8 jacketed multi-pair distribution wire

Compare the advantages of this new Figure 8 standard for the industry against the distribution wire you're using now.

1. Conductors are insulated with fully color-coded virgin premixed high molecular weight polyethylene permitting the use of mechanical connectors as well as filled or unfilled sleeves for splicing.

2. Jackets are also of HMW PE providing low moisture diffusion and long life with marked reduction in possible installation damage, or damage resulting from accidental contacts from foreign objects.

3.  0.083 mfd/mile nominal mutual capacitance.

4. Voice frequency increase of attenuation from dry air to heavy rain is 1% or less. The increase at 200 kc is approximately 2%.

5. Complete, fully illustrated installation instructions are available to help simplify installation.

6. Anaconda RD-8 is available in 19 Awg; SD-8 in 22 Awg.

7. All-polyethylene construction assures long life and excellent transmission characteristics.

For more information about Anaconda RD-8 or SD-8,
Contact Anaconda Wire and Cable Company,
25 Broadway, New York 4, New York, Department EFL-1-TEM.

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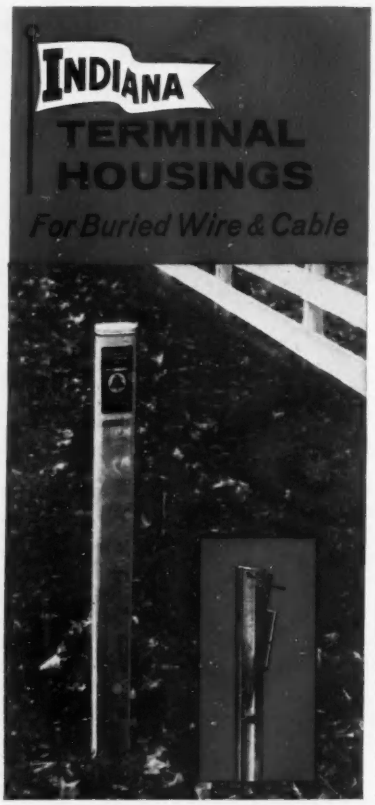


SPEED UP
Installation

You can save time and labor by specifying INDIANA Terminal Housings for your buried wire and cable jobs. The heavy No. 10 gauge steel stakes of the pedestal type can be driven into the ground. The cover plate can be attached or removed with ONE screw. All models are designed for ease in mounting terminal blocks and loading coils and in making splices or connections.

INDIANA Terminal Housings are heavily galvanized AFTER forming for longer life. Available in both pedestal and pole-mounted types and in four models capable of accommodating from one pair to 400 pairs.

Ask your distributor of telephone supplies or write for Bulletin No. TH-101R.

INDIANA
Steel & Wire Company, Inc.
Muncie, Indiana

our booths have been developed from that beginning to the more commodious modern variety, wherein a man can turn around, if he is very thin and very careful.

We have always believed that the evolution has been in the other direction; but now there is hope for the future. Eventually we may enjoy telephone booths that will permit the occupant to read his directory and get his money out of his pocket, even if he is not a professional contortionist.

Western Gloat

THE SPLIT of the Pacific Telephone & Telegraph Co. properties, by the formation of the Pacific Northwest Bell Telephone Co., implies much more than a concession to telephone growth. It is one more symptom of a national metamorphosis that eventually will shift our center of population west of the Continental Divide, and the Congress to somewhere between Bellingham and San Diego. (We suggest San Francisco or Seattle. Not even a politician should be condemned to Los Angeles smogs).

In the census decade 1950-1960, New York City lost 1.4 per cent of its population, while Los Angeles gained 25.8 per cent. In the northeast and midwestern areas, all cities with more than 50,000 people, except Milwaukee, lost population. At the same time most cities in the west and south gained handsomely. Some grew amazingly. Tucson gained 368 per cent; Phoenix increased 311 per cent; Albuquerque, 107 per cent; and San Diego, 71 per cent.

While New York State gained 13.2 per cent, California jumped 48.5 per cent to a population of 15,717,204, only a paltry million behind and coming up fast.

Easterners, you've had it! Your day is waning. Not for much longer shall we of God's Country, between the Rockies and the Pacific, have to listen to such naivete as: "Oh, you're from San Francisco? *Must be fun*, being so close to Hollywood." Bishop Berkeley's "Course of Empire" has taken its way beyond you. The greatness of America in the world of the centuries to come will lie along our Pacific coast.

East rhymes with "least" or "yeast." West rhymes with "best" or "crest."

Essential To Defense

IF EQUIPMENT essential to national defense—that includes most telephone property—is destroyed by an invading army or by agents of an enemy nation, at all events both sides, those who own it and those who destroy it, have logical excuses.

If a mischievous child or a lunatic commits the same offense, it is more serious. It is harder to anticipate; and the owners are more likely to be blamed for their negligence.

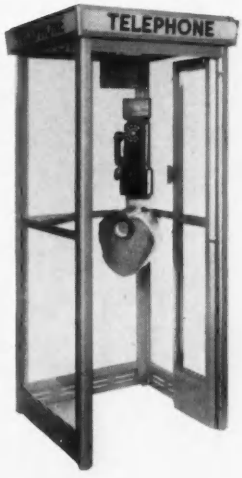
For the bombing of microwave plants in Utah and Nevada, Bernard Brous, of Los Angeles, and a youngster named Dale Jensen, were arrested. Brous has variously described himself as "Secretary-General of the American Republican Army," "Marquis de France," et cetera. He loaded up his yacht with machine guns and grenades, to protect him "from the A. T. & T. goon squads." He invited his own arrest by writing to President Kennedy and to scores of newspaper editors.

However seemingly unimportant and wherever it may be located, any telephone plant may suddenly become vital to military action. Most of our equipment is easily destroyed and too easily accessible. We can, of course, wail for government protection; but if we demand private ownership, we should assume private responsibility. Access to telephone plants should be made far more difficult for outsiders than it is now.

"Thank goodness! . . . I thought we'd never find one."

PROVE IT

BEST for visibility



With only one divider rail on each side and with slim corner posts, you (and your clients) have the maximum in "seeability" —in or out.

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a B-N booth is a busy booth!

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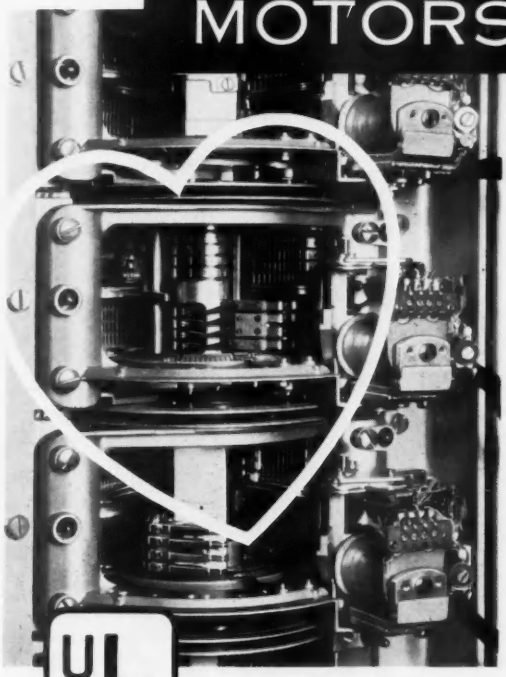

. . . Heart of the Central Office Telephone Exchange

The use of the USI Motorswitch enables central offices to combine the simplicity of step-by-step with superior speed and flexibility of common control!

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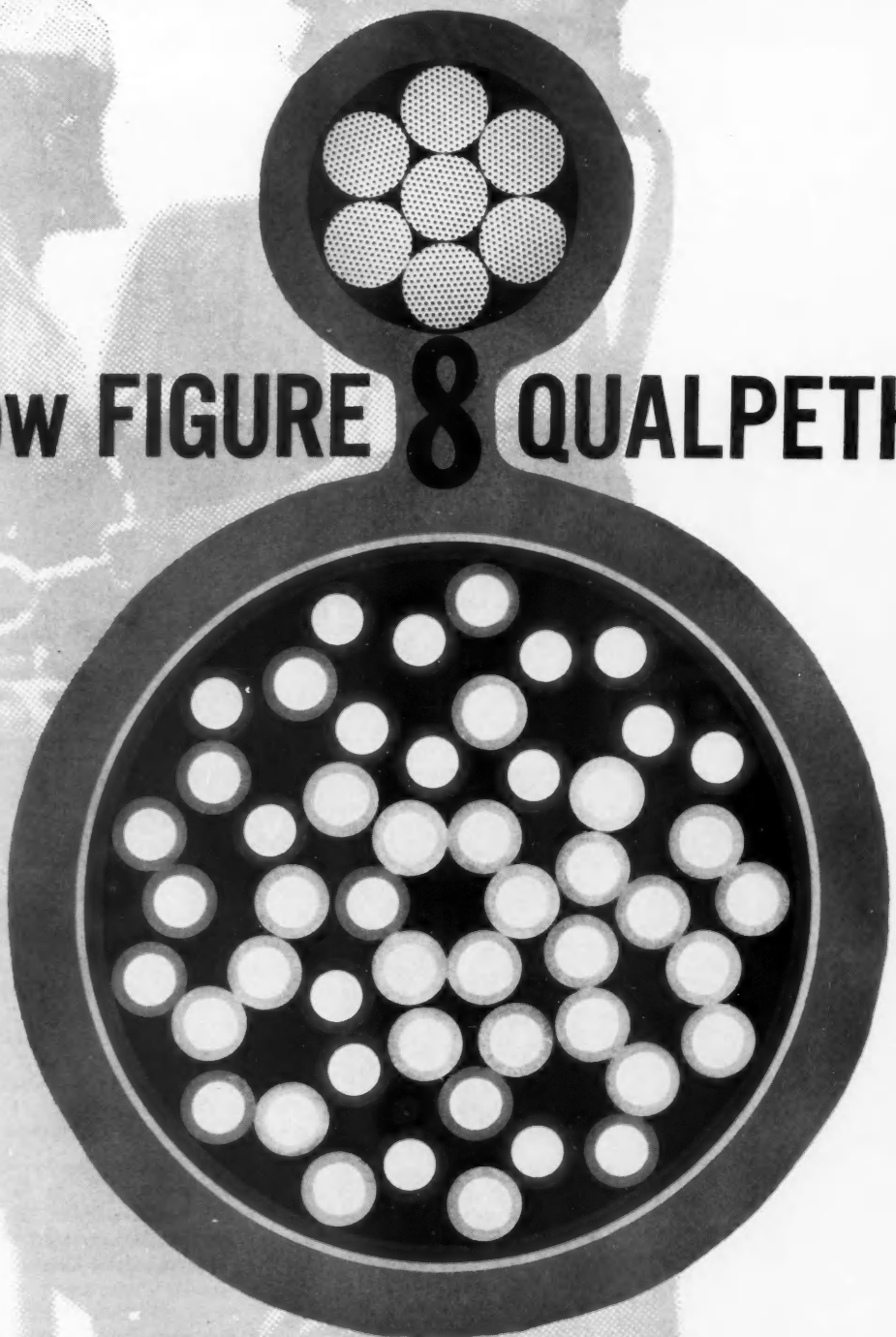
- **Precious-Metal Contacts** — Palladium-silver (compared to base metal) provides least contact resistance, maximum reliability in talking paths.
- **Solderless Bank Contact Strips** — Reduce soldering connections by 90% . . . increase reliability . . . simplify regrading . . . reduce number of grading and level hunting switches.

USI CORP.®

UNITED STATES INSTRUMENT CORPORATION
CHARLOTTESVILLE, VIRGINIA

How FIGURE 8 QUALPETH



General Cable's FIGURE 8 QUALPETH cable consists of both cable core and strand covered by a single polyethylene jacket.

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Subsidiary of
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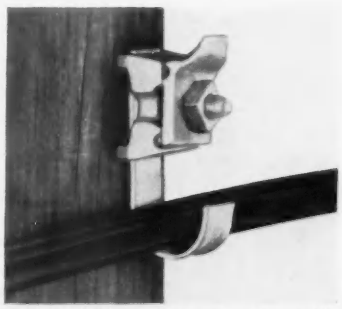
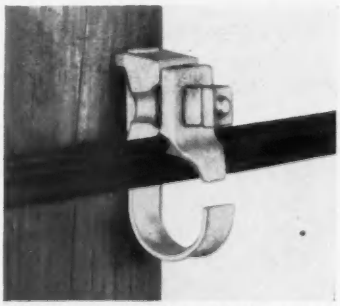
Cuts Your Installation Costs!



To install Figure 8, simply place cable over the j-hook of the cable hanger prior to tensioning.



After tensioning, the cable is secured in the groove of the hanger. J-hook now serves as safety strap. No separate strand placing. No cable spinning.

General Cable's Figure 8 Qualpeth cuts your installation costs lower than ever before. With Figure 8 Qualpeth you eliminate the time and money-consuming operations of strand placing and cable spinning.

Figure 8 Qualpeth is one complete unit. It consists of both the cable core and strand covered by a single polyethylene jacket. You simply place the cable onto a special cable hanger and sag the cable by proper tensioning of the strand. After tensioning, the cable is secured in the hanger.

By eliminating the strand placing and cable spinning operations, you reduce labor costs, installation time, and transportation costs.

Another General Cable bonus: A sealing compound is used to fill the spaces between strands and jacket. This prevents entry of water, curtails corrosion, and adds years of service to cable.

Figure 8 Qualpeth is available in 6 to 400 pairs. It comes in 19, 22, 24 and 26 AWG. Write today for price and delivery information.

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SEND YOUR PROBLEMS TO TE&M

A glance through the mail received daily at TE&M's office is enough to prove that readers all over the world bring their problems and questions to TE&M. And we're happy they do. Believing that the questions and problems presented by TE&M readers, and the answers prepared by TE&M's editors, will be of interest and value to all readers, we have developed this TE&M feature, and we hope you will use it whenever you need a fast correct answer to a question, or a solution to some operating problem. Send your questions to: *Editor, TE&M, 7720 Sheridan Rd., Chicago 26, Ill.*

QUESTION: — *We have heard that there is a method of killing trees and saplings by injecting a herbicide into the soil near the plants. Do you have any specific information on the method?*

ANSWER: — The Agricultural & Mechanical College of Texas conducted experiments using a soil fumigating gun to inject solutions of 2, 4, 5-T in oil (4 to 8 pounds of herbicide per 100 gallons of fuel oil) into the soil surrounding the trees. This method is said to produce kills of plants up to 8 inches in diameter at a cost of about 60 per cent of the cost of standard basal bark spraying. Around 2 ounces of the herbicide and fuel oil mixture is needed per inch of diameter of the trees. Oak, elm, and locust trees were killed by the injection method. Care is needed to properly inject the mixture to reach the parts of the plants below the soil level. Best results appeared to be obtained in the spring months when the moisture content of the soil is high.

QUESTION: — *What would be the important considerations in deciding whether subscriber carrier can be employed for providing service?*

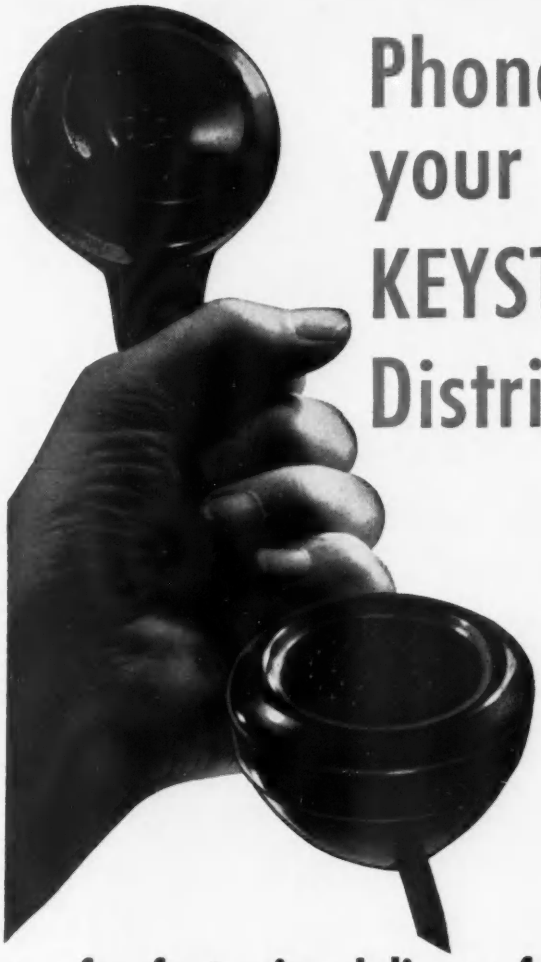
ANSWER: — In addition to cost comparisons with comparable physical facilities, the following would be important factors to consider: (1) The need to provide standby power. Experience indicates that subscribers will complain about a telephone that fails to work when the power goes off. In fact, they expect their telephone to be the last thing to fail in a disaster. When power outages are due to factors which do not ordinarily affect telephone lines, such as some short circuit or overload condition on the power lines, the failures would be serious matters if they also affected the telephone service in the same area. Nothing can be done about situations such as sleet or wind storms which cause disruptions of both the power and telephone services at once. If power failures tend to be rather frequent in the locality where telephone service is to be rendered by subscriber carrier, consideration must be given to the provision of an auxiliary source of power such as small storage batteries. (2) The ability to provide Direct Distance Dialing service for the subscribers, particularly in rural systems. In the Direct Distance Dialing setup where the rural party-line subscriber can have access to a ticketing unit in the central office, a current pulse over one side of the line and ground during a dial impulse period from the subscriber's telephone identifies the party subscriber for billing for the toll charge. As presently designed, the subscriber carrier system will not pass this ground return pulse. For this reason, it will be necessary to employ operator identification of the party making the toll call. In this setup, the operator comes in on the line when the subscriber dials his access code and obtains the calling party's number. (3) Freedom from line noise. Probably the most common problem in setting up subscriber carrier systems is the presence of line noises which can have a serious effect on the successful operation of the system. It is very important that the line be in good condition.

QUESTION:—*What are the advantages of "Ready-Access" terminals?*

ANSWER: — Ready-access terminals are used with the so-called "PIC" cable. This cable has polyethylene insulated conductors and polyethylene sheath. This type of cable need not be sealed tightly to keep out moisture and it is not necessary to use a watertight terminal on this type of cable. The ready-access terminal has a hanging fixture on which terminal blocks can be mounted for connecting the cable pairs and a neoprene hood which keeps out water.

Since any cable pair can be selected for the connection, this terminal provides a very flexible count for cable pairs. Furthermore, they are identified by a color code which makes it unnecessary to buzz out the pairs to locate the desired one. Splices can be easily made by using filled connectors such as the Scotch-Lok type UR. These connectors contain silicone grease that moistureproofs the splice. Connections can be made at the time a telephone is installed and since only a few drops may be needed at the most, a six pair terminal block can be used.

The terminal posts on the block are provided with leads, which are spliced to the cable pairs with filled type connectors. Because of their simple construction, the terminals are low in first cost and they can be installed very economically. In addition, combinationmen or installers can make the connections to the desired cable pairs and it is not necessary to have a cable splicer do this work.



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EDITORIAL

"Freedom to Compete"

A few weeks ago the president of the Mountain States Telephone & Telegraph Co., Walter K. Koch, journeyed from his home base in Denver, Colo., to Honolulu, addressed the annual conference of the Mountain-Pacific Association of Public Utility Commissioners, and presented some facts and thoughts that deserve the careful attention of those *who regulate*, and those *who are regulated.*

In brief, the remarks of the Mountain States president emphasized that the "*traditional relationship between the telephone industry and regulation is rapidly changing*" *and a "revaluation of the situation is required.*"

President Koch pinpointed this fact when he told the Mountain-Pacific commissioners "*The combination of regulation and direct competition can lead to the continued advance of the communications art — to the wide utilization of communications that will be increasingly necessary in our society . . . But this result can be attained only if regulators grant us in the industry the freedom and the means to compete effectively.*

"*Freedom to compete stems from adequate profits. If we are going to compete against unregulated business, we need to earn on a comparable basis. Manufacturing companies have averaged earnings of about* 12 *per cent since World War II. We haven't done nearly as well. The current earnings level just isn't enough to meet the greater risks inherent in the competitive situation, and at the same time enable us to continue our large contributions to the national economy and security.*"

After pointing up such truths, President Koch reported on other factors which are changing the picture, including a vast change in the market "*in which people now insist on selecting from a variety of items.*"

"*This results in fluid revenue,*" he declared, "*which requires a heavier investment in inventories and implies faster obsolescence . . . Another problem is the increasing mobility of the American family. The result for the telephone business is more work and more expense per telephone gained . . . Another change is that customers now expect more extended area calling privileges without toll charges . . .*"

Certainly, President Koch's review of some of the factors that "*mean greater risks and higher costs for the telephone industry*" proves that regulated and unregulated industries have drawn much closer together than some of the theoretical concepts based on the facts of 25, or even 10 years ago, recognize.

Today, the telephone industry operates in America's competitive economy. It competes in the free market for labor, materials and capital, and it bids with others for these essential components of business. Its *costs are set* by competitive standards, while its *prices are established* by government regulation.

We have no quarrel with the need for governmental regulations of utility prices; unquestionably it must continue in the absence of direct competition. But in the interest of consumers we do believe more regulatory commissions must recognize that the "*traditional relationship between the telephone industry and regulation is rapidly changing and a revaluation of the situation is required.*"

We also believe the regulators might well take a more balanced view looking toward stimulation of telephone industry expansion and innovation rather than to prices and profits alone.

Rather than restrictive price and profit control, we believe regulation can, and should, permit more generous margins to encourage the same sort of dynamic operation in the telephone industry which has characterized unregulated industry. It seems to us, this can be achieved within the existing legal framework by permitting a range of profit above the levels prescribed in the past, not solely as a reward for managerial efficiency but more importantly to recognize and encourage the risk-taking involved in accelerated expansion and innovation.

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Washington OBSERVATIONS

By ROLAND DAVIES and FRED HENCK

Independent offices funds bill contains major share of GSA-TPUS funds requested; urges good judgment by agency . . . Clapp reports on answers about REA phone program's past . . . Assistant Attorney General Lee Loevinger clarifies statement on AT&T's international communications facilities.

Congress Cuts Slightly GSA Rate Activity Fund

THE ON-AGAIN, off-again activities of Congress in considering just how far the General Services Administration (GSA) should go in its appearances on rate matters before state and federal regulatory agencies was finally resolved with the passage of an independent offices appropriation bill containing a major share of the funds requested for GSA's Transportation & Public Utilities Service (TPUS) with restrictions on TPUS intervention in cases before the agencies not as specific as that proposed by the Senate when it first passed the measure.

The appropriations bill, as finally agreed to by conferees of the House of Representatives and the Senate and then enacted into law, gives GSA's TPUS a fund of $2,400,000, a reduction of about $100,000 from the original budget request and $75,000 less than the original House-approved figure. The Senate had proposed an appropriation of $2,175,000.

In addition, the conferees provided that the $75,000 cut from the House amount "is to be applied uniformly to all activities financed from this appropriation," and not applied entirely to the "representation" function.

The conferees said they expect GSA "to act with good judgment and not enter into any harassing activities, to avoid trivialities, and protect the interest of of the government as a consumer. The conferees also suggest that the respective legislative committees review the basic legislation to determine if any revision is needed."

The significance of the conferees' comments was debated in the Senate prior to adoption of the conference report. Remarks were made by Senator Gordon Allott (R., Colo.) and Senator William Proxmire (D., Wisc.), who earlier had sponsored an amendment to the Senate bill to cut out language which would have barred GSA from putting in any rate case evidence dealing with regulatory policies on rate-making or property evaluation. The Proxmire amendment, which also would have restored the full amount voted by the House for TPUS, was rejected by a 55-32 margin.

Senator Allott commented that the reference to protecting the interest of the government as a consumer is "the provision that we expect to govern" TPUS. He added, "We do not intend to have them attempt to control the basic over-all valuation of utilities or to try to establish the rate policies of the utilities."

The Colorado senator said "we expect GSA to represent the consumer and not interfere with the regulatory policies imposed upon commissions by state law or with the regulatory policies of the federal agencies as imposed by federal law."

Clapp Reports On Study Of REA's Phone Program

RURAL Electrification Administrator (REA) Norman M. Clapp has reported that a special fact-finding group has come up with at least partial answers to five questions which covered the principal "doubts and criticisms" expressed in the past about the REA's farm telephone program.

Answers to the questions, Clapp declared, are as follows: On area coverage, "The results of the survey make it clear that borrowers still have a very large job to do in their service territories. Fifty-three per cent of the total number of establishments outside the base rate area still do not have service . . . The questionnaires reveal that REA-financed telephone cooperatives would be willing to extend service to about 92 per cent of the unserved establishments beyond present lines without additional construction charges. REA-financed commercial telephone companies reported they were willing to extend service under these conditions to about 45 per cent without additional construction charges . . . One thing is clear, as a result of the study. We need more emphasis on area coverage. REA intends to do something about it."

On the amount of loan funds used to finance nonrural facilities, Clapp commented, "Our study shows

that only 5.4 per cent of total telephone loans went to provide non-rural service incidental to the improvement and extension of rural service under the act. Only one out of 10 subscribers receiving new or improved service through REA financing is a non-rural subscriber . . . We have concluded that the use of REA loan funds for non-rural plant has not been excessive."

Regarding commercial versus cooperative loans, he reported that "In June, 1955, there were 175 cooperative borrowers and 176 commercial borrowers of REA funds. Since that time, the number of new cooperative borrowers has been fizzling out, until in fiscal 1961 we had only one new co-op. Today, REA has 210 cooperative borrowers and 535 commercial borrowers.

"The development of new cooperatives in this program is presently at a standstill. This is the fact we are dealing with . . . As the program develops, our chief challenges are going to focus increasingly on areas of lower density, where the possibility of attracting profit-motivating companies decreases. Here the cooperative approach has a unique contribution to make."

On the question of speculation in REA loans, Clapp declared that "What we are learning already causes me a great deal of concern, and we have not yet completed our study of this question." He pointed to the new policy bulletin requiring at least a 10 per cent equity for acquisitions and improvements where the facilities will not be locally owned, and taking other measures to avoid speculation.

Regarding REA technical assistance, the final question, he said that "REA might use its available personnel to better advantage."

Loevinger Clarifies Statement On AT&T Overseas Services

ONE OF the most surprising statements to come out of the volumes of testimony presented during recent weeks in the rash of congressional hearings on space communications was the comment by the head of the Justice Department's antitrust division that the government has "under consideration" action which would force the American Telephone & Telegraph Co. to dispose of its international communications facilities.

Assistant Attorney General Lee Loevinger made the comment during testimony before the Senate Small Business Monopoly subcommittee, which conducted six days of hearings directed at the question of possible monopoly aspects related to private enterprise operation of a satellite communications system.

But immediately afterward, responding to reporters' inquiries, Loevinger retreated from the flat statement contained in his testimony and said no inference should be drawn that the department is actively contemplating such a move in the near future.

During a discussion regarding possible participants in a joint venture to operate a satellite communications system, Benjamin Gordon, subcommittee counsel, had raised a series of questions as to whether the FCC was effectively regulating overseas rates of AT&T.

At first Loevinger declined to answer, but when Gordon asked if there was "any analogy" between the 1943 order to the Western Union Telegraph Co. to divest of its cable operations when it merged with the Postal Telegraph Co., and the present time, when AT&T is the "dominant" domestic company, the Justice Department official said he felt that in the two situations Western Union was "less monopolistic."

Then, asked by the subcommittee counsel if AT&T should be required "to do the same thing" (divest), Loevinger stated: "We have that question under consideration."

Some Wall Street observers attributed to the comment on overseas services a $4.62 drop before the end of the same day in the AT&T stock held by 2,000,000 shareowners.

Commenting on Loevinger's statement, AT&T said, "We have not been informed of any such investigation, and feel we are in complete compliance with the antitrust laws."

AT&T, USITA Support Mobile Relay Proposal

SUPPORT for FCC rule proposals which would permit mobile relay operations in the telephone maintenance radio service on the frequency 151.985 megacycles was filed with the Commission last month by the American Telephone & Telegraph Co. and the US Independent Telephone Association.

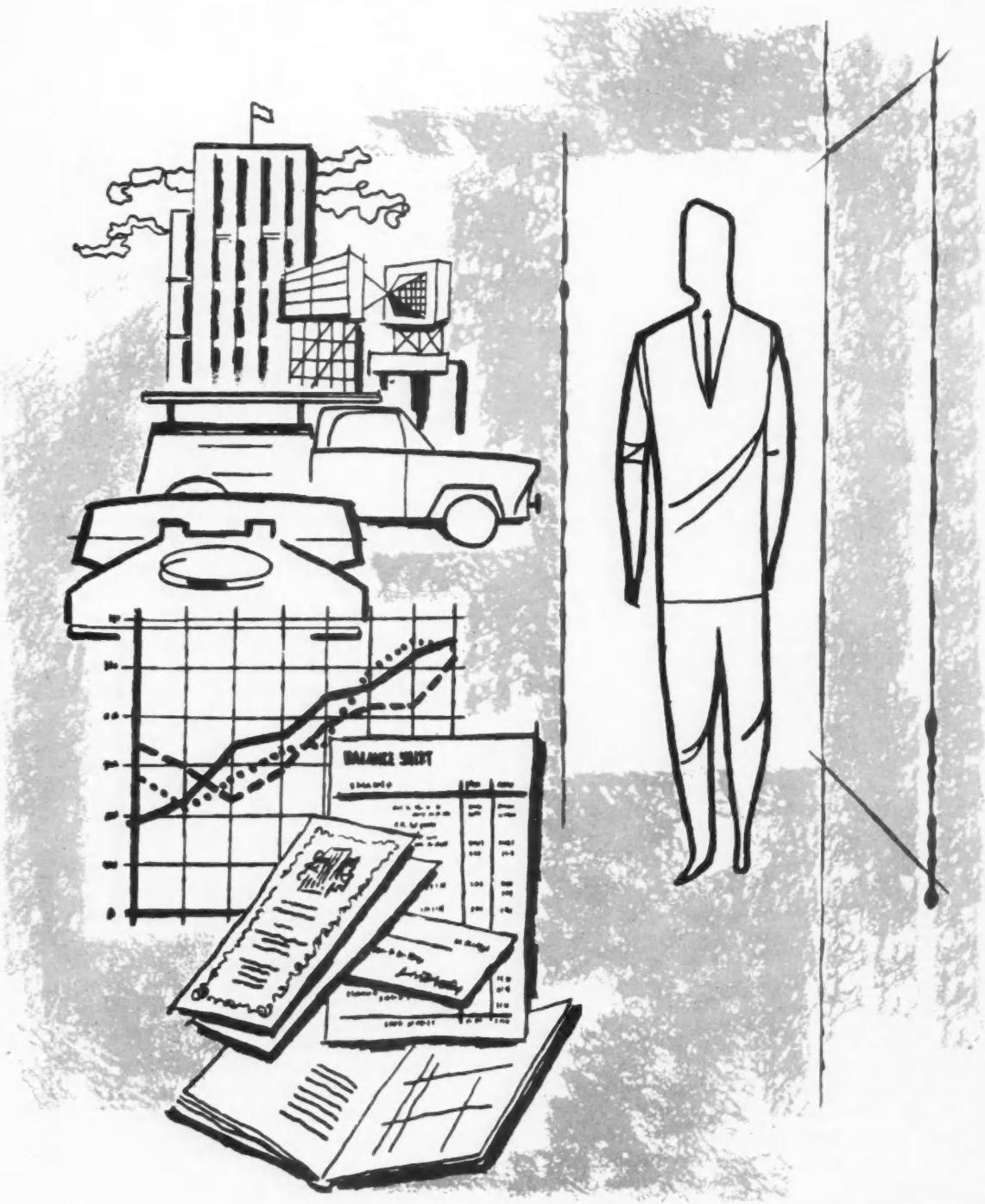
Extended range mobile-to-mobile radio operations, as contemplated by the proposal, AT&T said, would "greatly increase the value" of the telephone maintenance radio systems "and make them an even more effective tool in the conduct of efficient operations."

"Although only two of the Bell System companies, the Chesapeake & Potomac Telephone Co. of Maryland and the Bell Telephone Co. of Pennsylvania, have made application for authority to conduct mobile relay type operations in the 150 mc band," AT&T said, "a number of other Bell System companies have been awaiting the outcome of these filings before proceeding with similar requests.

"Therefore, it would appear that the Commission's proposal to permit these operations on a regular basis rather than on a waiver basis is a logical step to facilitate licensing and operation of these stations. Operations of this type are necessary if the telephone companies are to derive maximum benefit from the use of their mobile systems."

USITA commented that the FCC proposal, if adopted, "should provide a larger area of coverage" for many Independent telephone company maintenance radio systems "without significant increase in cost to the operating company," and will "assist in achieving maximum utilization of the service and repair equipment of the telephone company."

The Pursuit of



Excellence

By FREDERICK R. KAPPEL
Chairman of the Board,
American Telephone & Telegraph Co.

HERE IN AMERICA we have set high standards — new standards, really — in affording equal opportunity to millions of men and women. We have cared deeply about individual freedom, and one result is that free minds and free energies have brought about a degree of material progress so far unparalleled. We can be proud of the progress we have made in reducing want and in opening the way toward a better life for all.

Yet, it seems that in doing this we have also created a society in which it is relatively easy for individuals to become more concerned with what they have coming to them than with what they can and should contribute; a society in which personal goals may tend to be established somewhere in the middle range of one's capacities, rather than at the top; and a society in which, due to our preoccupation with satisfying the wants and rights of all and with providing for the security of all, we may fall short of setting conditions that will challenge, and call forth "the best possible" in an individual — the utmost talent and effort of which he is capable.

The future depends on whether our people will strive to excel and, in particular, whether the most gifted will develop their talents to the utmost, with the respect and encouragement of their fellows. But of what does "the best possible" consist, and what are the means to achieve it? This is the kind of question that everyone — whatever his line of endeavor — has to ask and try to answer as specifically as he can. In the telephone business, for instance, we see several specifics. One is that your telephone should be reliable. You should be able to depend on it — count on it — trust it — whenever you need it. Your service should be universal, so that you can reach anyone, anywhere, and anyone can reach you. Another is that your use of the telephone should be as convenient for you as possible. This means several things. For example, calls should go through without delay. You should be able to talk and hear easily. When you order service, you should get it promptly. If an operator handles your call, you want her to be pleasant as well as efficient, and so do we. A further element is that your service should always be up to date, always ready to take care of your changing needs. For instance, as the needs of your business change, we should be ready with telephone service to match. In fact, we should try to keep ahead of you, so that our progress will contribute to yours by enabling you to accomplish things that you could not accomplish before.

There are other elements or factors which would also be part of the best possible service, but those mentioned are illustrative. The point is that they all depend on how well we succeed in achieving a high degree of excellence in several fundamental respects.

One such fundamental in pursuit of the "best" in our company is excellence of physical apparatus and equipment. Reliability depends on this. Easy talking and easy hearing depend on it. Accuracy in reaching anyone you want to reach depends on it. Progress in speeding up the service and increasing its convenience depends on it

An example of this is the improved, faster long distance service known as DDD, or Direct Distance Dialing. Millions of telephone users already can dial other telephones all over the country without the help of an operator. Not many years hence, nearly all long distance calls will be made just as easily and quickly as local calls.

One of the men who head up the work on DDD has described the telephone switching system as the world's biggest computer — the biggest by far. Physically, it spreads over a continent. Requests are put into it at more than 50 million points — that is, from any dial telephone. It receives about a quarter of a billion problems (telephone calls) a day; some are simple to handle, some complex. It programs its own course of action and is in service 24 hours every day; there is no "down time." It is continually added to, changed, and modernized. In many instances, for purposes of accounting and billing, it makes its own record of whom it serves, when and for how long.

This is a broad analogy, referring not only to distance dialing but to the whole switching system. However, it helps to point out that every part of the system must be "tops" in quality. Everything has to work together and each segment depends on all the rest. So there's precious little margin for error. No component can be allowed to start on a second-rate basis, or get into a second-rate con-

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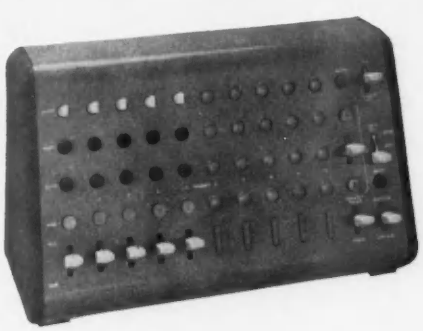

TYPE 75 PABX A complete communications system. Designed to serve up to 200 lines. Can be expanded for greater capacity. Desk-type attendant cabinet (shown here) or floor-type attendant cabinet.

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dition. The aim must always be for built-in excellence.

The second basic excellence is financial. Of course, this is a problem for every business — and every government too. Certainly it isn't ours alone. But, sticking to our own knitting, this telephone switching system, for instance, represents today an investment of about seven billion dollars; and the total investment in the Bell System is more than three times as much. We must be fully responsible for every penny of it. This is the only possible basis for our ability to keep the trust and confidence of more than 1,900,000 share owners. Moreover, for genuinely good service, and not just the passable kind, there must be earnings that will permit continuous research and technical development; the financial reputation that will draw first-rate talent into our business; and the framework of incentives and rewards that will invite people's interest in doing a better job.

For such reasons we have to work unremittingly to make and keep ourselves financially sound and strong. Here our responsibility essentially is no different from that of other institutions, both private and public. In the field of private enterprise, good earnings stimulate production and employment, encourage science and technology, and open the way to higher standards of living for more people; and, in the public area, fiscal soundness is essential to maintain the free world's confidence in us, and to build our national security.

The third excellence is the one from which, of course, the others are derived — excellence of human performance. This has many aspects, including technical skills, vision and imagination, plain drive or energy, courtesy and understanding, and a lot of other qualities. One aspect seems of top importance: that is, how we can help people to become better managers. Surely the supreme responsibility of management today is to lead the way to more excellent management tomorrow. If this is so, then how should we set our course? What kind of thinking now will foster better management in the future?

In our company we begin with the thought that ours is a long-run business and must be managed for the long run. We are aware that in recent years we have had a tremendous growth, and we foresee that in the long run this growth will continue. Thus the responsibilities of management will certainly grow greater — there must be many more managers to fulfill them — and the challenge to individual managers will continue to increase.

What, then, should it mean to be a member of a management team that manages for the long run and faces these prospects? These are some of the answers:

(1) Good work and poor work, sound judgment and error, are all to be accounted for.

(2) All the obligations of the business are kept under close scrutiny all the time.

(3) The people in the business are important as ends in themselves.

(4) Through good times and bad, the effort to manage better is always a part of every manager's job.

Better management logically comes from two independent sources: on the one hand, from better ways or methods of managing; and, on the other hand, from better people. A sound, long-run business must work for both.

Better methods can be worked on directly — to some extent they can be taught; but the growth of better people can be favored only by providing the environment in which growth is most likely to occur. In order to provide that environment, there must first of all be freedom and challenge. A manager must be free to develop his capacities in his own best way, not along lines prescribed by a standard model. When his further growth requires a new challenge, it must be presented to him promptly. Second, there must be opportunity to take responsibility and to taste the fruits of both success and failure. Third, there should be rewards for creativity, boldness, imagination, and judgment.

Finally, the environment must admit exposure to a broader world than any business, of any size, can provide. That the manager undergoes this exposure is his own responsibility as well as that of the company. It is important to open up many approaches to the broadening of managers' minds — through case studies, discussion, and planned reading, and also through university training, not only in technical and business subjects but in history, social and political science, and in some instances the arts.

These efforts to create an environment that will foster and nourish men's personal growth are not crystallized. We are carrying on increasing research to find better ways to manage, and to learn more about the conditions that encourage people to develop their talents fully. We are also making vigorous and widespread efforts to put the findings into practice. The encouragement we feel in some of the results gives us the strongest possible incentive to keep on learning.

"Helping People Grow"

TO THE extent that we — or any business — succeed in helping people grow as managers, may we not expect that their outlook, their interests, and their contributions as citizens will grow accordingly? A man's stature as a manager can hardly be separated from his stature as a citizen. In fact, management is really an aspect of citizenship. A manager who is "developing his capacities" is one who is growing in ability to see his job in its full social perspective.

These comments on the pursuit of excellence are made with an humble heart. In all endeavors it is the concern of everyone to strive for the best and never be content with less. The examples of what we are trying to do in our own business, and I emphasize the word "trying," are to help suggest once more that the challenge is on us all, and so is the necessity to respond. The particulars mentioned are only a few ripples in the strong side of effort to excel, demanded of Americans in all walks of life if we are truly to fulfill our responsibilities. — *Reprinted from "Southern Telephone News."*

Free Enterprise and National Defense

By AL McCULLOCH
Calif. Interstate Tel. Co., Victorville, Calif.

Initiating the original commitments in setting the company's construction phase in motion, WILLARD WADE (right), president of California Interstate Telephone Co., signs contract with primary supplier of equipment used in company's participation in the SAGE program. Standing at the left is GUENTHER M. PHILIPP, representing ITT Kellogg in the transaction, and looking on in the middle is Major W. E. McKEEVER, (at the time) SAGE Coordinating Director for the Los Angeles Air Defense Sector at Norton Air Force Base.

THE DAY when comparatively small Independent private concerns can legitimately blow their own horn seems to have become an evasive possibility. However, that "day" has almost arrived for California Interstate Telephone Co., Victorville, Calif. On August 1, the permanent on-base equipment provided by this company, at the Boron Air Force Station, went into operation. On that day, California Interstate Telephone Company permanently lined up hundreds of other privately owned companies, large and small, across the nation, participating in this country's national air defense program.

Approximately eight miles distance in a northeast direction from Boron, Calif., the town made famous by the "twenty-mule borax teams" of by-gone days, the site depicted in U. S. Air Force terminology as "P-59" protrudes with a "foreboding air" from the rocky, irregular landscape of the Mojave Desert. Here, paradoxically etched on this barren terrain, stands a symbol of freedom's deterrent to despotic influences in the world today.

The "mother" of invention, we attribute to "necessity." In like manner, can be ascribed to national defense, in this perplexed and "shrinking" world, the justification for this construction and activity on the desert of Southern California. For P-59 represents one of the many connecting links to the vast, complex and intricate air defense system known by the initials "SAGE" — Semi Automatic Ground Environment.

To explain in detail this complicated air defense system which stretches the imagination of even the most thoroughly informed is not my purpose. The associated scientist and engineer, the technician and statistician, the mathematician and administrator are far more capable in this respect. However, to set the scene and intelligently portray the roll of SAGE in this air defense drama, it will be necessary to briefly scan the over-all picture.

In September 1957, a joint alliance between the United States and Canada involving a mutual defense system for the North American Continent officially came into existence. From this mutual defense system stemmed the formation of the North American Air Defense coalition known by its abbreviated title as NORAD. NORAD is charged with the responsibility of protecting various primary targets in the United States and Canada against air attacks by any aggressor and operates with headquarters at Colorado Springs, Colorado. This combined U. S. and Canadian force police an area approximately 15,000 miles long, encompassing 8,000,000 square miles, and reaches 10 to 12 miles into the sky.

Three farflung lines composed of air, sea and ground radar elements have been incorporated into the system and constantly scan the airway approaches to Canada and the U. S. These three lines of defense are represented by: the Distant Early Warning, or DEW line,

extending across the northern extremities of Alaska and Canada; the mid-Canada line, running through the wilderness of Central Canada and paralleling the DEW line some 600 miles to the south; and the Pinetree line, located just north of the parallel forming the Canadian-U. S. border.

In addition to the above, there are Ballistic Missile Early Warning Stations under construction at strategic locales, air and sea radar pickets off shore, and to the south, Texas Towers watching from steel and concrete platforms near the edge of the continental shelf, 100 miles at sea.

The U. S. obligation in the North American Air Defense joint operation is carried on by the U. S. Air Defense Command, or ADC. It is the responsibility of this command to detect, identify, intercept, and if necessary, destroy unidentified aircraft in the skyways over North America. In this mission, the complex of SAGE becomes apparent, and its ultimate contribution realized.

To understand the scope of the SAGE project, comparison has been drawn with the efforts involved in respect to the Manhattan Project surrounding the development of the first atomic bomb. The ground work is attributable to the recommendations of a group, especially appointed by the Air Force, to study the problems of improving the air defense of the nation. And thus, SAGE was first conceived and introduced by the Massachusetts Institute of Technology's Lincoln Laboratory, early in 1953.

The basic concept of the new ground environment system was the automatic transmission of a centralized electronic computer system to furnish the improved tracking and weapon handling capability to cope with mass air attacks by the enemy. The "brain" of this new system is a huge electronic computer, a piece of machinery with almost human-like ability, which receives, memorizes, calculates and records answers simultaneously in the form of intelligible code upon the face of an electronic tube similar to a television screen. By watching this screen, air defense commanders can follow the air battle situation in their area of responsibility and direct those weapons available to them to the point of the most immediate and certain destruction of any invading enemy forces.

Twenty-nine SAGE Direction Centers are either already constructed and equipped, or are in the development stages throughout the United States. Responsibility in the southwest section of the nation rests with the commander in charge of the Los Angeles Air Defense Sector, with headquarters at the SAGE Direction Center at Norton Air Force Base, near San Bernardino. For the Sector to fulfill its mission, it must have a continuous and dependable radar network, giving full coverage to the area of responsibility. And thus, we return to P-59. For the Boron Air Force Station is one of the long-range radar stations strategically placed to assure dependable radar information coverage for the successful operational mission of the Direction Center at Norton AFB.

Standing left to right respectively are WARREN McMURRY, local company manager, and WILLIAM CLELAND, local plant superintendent, and SAGE Project Field Coordinator in the SAGE participation of California Interstate Telephone Co. Behind the CITELCO Boron Central Office, the top of the recently constructed Boron microwave tower can be seen which represents the Boron link in the new SAGE microwave system.

The SAGE system is more than a story of ultra-modern, highly technical mechanizations involving air defense preparations. It is a story of freedom in action, of free enterprise working hand-in-hand with the professional military, and of a nation's defensive efforts stimulated by the minds of free men. Hundreds of individual companies have played their part in the inspiring achievement of SAGE.

As the manufacturing and supply unit of the Bell System, Western Electric Co. holds the prime contract for engineering management of the SAGE system throughout the U. S. The heart of the SAGE Air Defense Sector, one of the world's largest and fastest electronic digital computers was designed by International Business Machines Corp. in cooperation with the Lincoln Laboratory of MIT, Burroughs Corp. has played a role in developing electronic data processing devices which are used to transmit radar data to the electronic digital computers at Direction Centers.

Systems Development Corp. of Santa Monica, Calif., was awarded the national contract for programming and training in every SAGE Direction Center constructed in the U. S. Airborne radar units by General Electric Co. feed data to Direction Centers from the sky. The radar equipment in aerial radar stations is this company's Light Military Electronic Department's contribution to the air defense system.

The land based "eyes" of SAGE are of three types: long-range radar, gap-filler radar and the optical nerve "cross-tell" equipment, which links two or more SAGE Direction Centers. As a sub-contractor to the Inter-

Please turn to page 44

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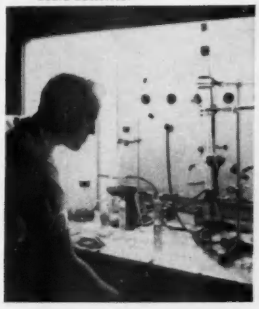

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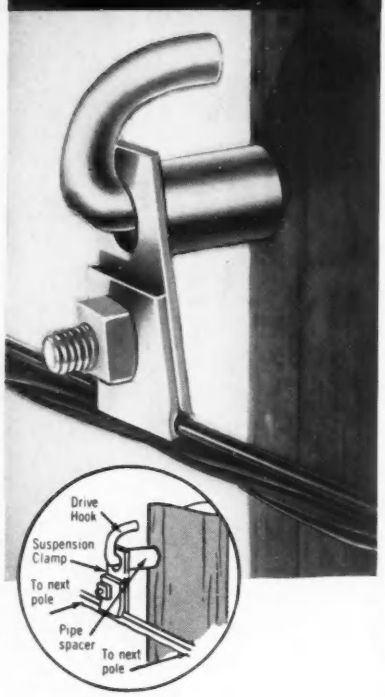

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national Business Machine Corp., the Radio Division of Bendix Aviation Corp. manufactures these prime search radar units. And without the contribution of the "RAPPI" (Random Access Plan Position Indicator), manufactured by the Lewyt Corp., the men working with the SAGE air defense system would be blind. This transistorized indicator displays and provides a printed record of the data gleaned by the radar units in the system through its television-like screen and a special magnetic tape imprinting ability. It was developed in conjunction with Lincoln Laboratory under a contract sponsored by the Air Force Cambridge Research Center in Massachusetts.

These companies represent just a few of the major contributors to the development of SAGE. On the local scene, and in relation to P-59, the California Interstate Telephone Co. is playing a part.

The principal efforts involve the connection of P-59, via a microwave system, to the Direction Center at Norton Air Force Base, and the installation of special equipment in the Telco Building at the P-59 site, enabling the transmitting and receiving of digital data, as well as air to ground, and vice versa, communications between aircraft and the two installations, making the system functional.

It is indeed indicative of the efforts required in many quarters regarding this vast program that California Interstate Telephone Co., a comparatively small Independent telephone company, operating in one corner of our land, can play its vital, yet overall limited roll, in the success of this important national defense program. The accomplishments of science, highly trained technicians, and the tacticians of the military, coupled with the resources, research center and the administrative ability and experience of industry, large and small, have made SAGE this "living reality." Once again "American Ingenuity has scored another "first" . . . another first, concerning national defense "insurance."—*Al McCulloch.*

"We Want Your Article"

The Editors of TELEPHONE ENGINEER and MANAGEMENT are interested in obtaining articles of interest to members of the telephone industry. Articles in manuscript form may be submitted for immediate decision, or projected articles can be outlined in a letter, in which case the writer will be advised promptly as to the suitability of the topic. TE&M can also use short "filler" items outlining worthwhile ideas that have made your telephone job easier. TE&M pays good rates for all accepted articles. Send manuscripts, or your letters of suggestion to the Editor, TELEPHONE ENGINEER & MANAGEMENT, 7720 Sheridan Rd., Chicago 26, Illinois.

Constructed on the Mojave Desert, near Boron, Calif., the Boron Air Force Station, or site P-59, plays its vital role in the complex air-defense system of SAGE. The Telco Communications Building is in the foreground.

the telephone notebook

Fifty years ago, L. C. Jones, then Plant Superintendent for the Chicago Telephone Company, sent out a letter to troublemen, listing 23 rules for them to follow. Felix J. Adamson of Cleveland recently came upon a copy of this letter which is reproduced below as it recently appeared in "Long Lines Magazine."

"HAND OUT A LITTLE JOLLY"

(1) Put up a "good front." It is not necessary to advertise any tailor shop; neither is it necessary to go about your work looking like a coal heaver. Overalls can look as respectable as anything else, but they must at least show that they are on speaking terms with the laundryman; and shoes must have a bowing acquaintance with the bootblack.

(2) Make the liveryman wash and oil your wagon and harness, and do not tie the harness up with wire longer than is necessary to get proper repairs. The same may be said of your suspenders and buttons.

(3) Keep all unnecessary junk out of your wagon.

(4) Don't pitch dry batteries into the bed of your wagon to be hauled around day after day with broken glass, bolts, wire pole steps and what not. Don't neglect to memorize the fact that the supply houses are not running charitable institutions for the benefit of the company.

(5) Go about your business cheerfully and quietly. When you enter a residence don't overlook the footmat. If requested to go around to the back door, don't consider yourself insulted, but try to realize that the lady of the house may not have a maid, and is only trying to save work for herself. Say "good morning", or "good evening," it doesn't cost anything and shows you started out right at home.

(6) If compelled to do anything that makes a litter, ask for a newspaper to catch the trash. The lady of the house will be grateful.

(7) Close the door when you go out, not forgetting to shut the front gate.

(8) When you leave be sure you have looked over everything carefully and have anticipated, as far as possible, some future trouble.

(9) It is not necessary to tell the lady of the house that her telephone is worn out and no good. She may think so much herself. Tell her that her telephone is as good as anybody's, and back it up by making it so.

(10) If you ever believe that a subscriber is a crank, forget it. All of them are wise enough to tell when a telephone is not working right. Not every troubleman can do this.

(11) Be courteous and polite, and don't be afraid to hand out a little jolly occasionally. It doesn't hurt anybody's feelings to be jollied a little.

(12) Treat everybody as you like to be treated, not forgetting your horse; if you want to know the horse's side of it, just take off your coat and hat some zero day, hitch

yourself to the same post with your belt, and stand there about two hours. Hereafter don't forget his blanket.

(13) Don't go pell mell through the streets regardless of pedestrians as though you were going after your salary check. The fact that man is always in a hurry doesn't always mean that he is accomplishing overmuch.

(14) Remember that you do more to raise or lower the company's profits per subscriber than anything else, except a sleet storm or a fire, depending on how many times you go back to do the thing that you should have done the first time.

(15) Don't idle away your time; there is always something to do if you will only do it.

(16 Don't forget to report to the proper party things that you see need attention.

(17) If you will do today what somebody would put off till tomorrow you needn't worry about your future.

(18) Cultivate the friendship of the people with whom you do business; it makes friends for the company, and friendship is essential to true success.

(19) Carry yourself with dignity and others will accord it to you.

(20) Study your business and try to improve the quality of your work.

(21) Remember that you are working more nearly on honor than any other employe of the company, considering that necessarily the troubleman has less supervision than other employes; hence you should come across with a square deal.

(22) Report for duty promptly and don't be afraid of working overtime.

(23) If you don't like your job, resign. It will be better for you and the company.

OPERATORS TRAIN WITH "T" SCOPE

■ "Ready — concentrate — NOW." Three women direct their eyes toward a screen in front of them and in the split-second that an address, name or telephone number is flashed before them, every other thought is erased from their minds in an attempt to "*absorb*" the information instantly.

This is part of the drama enacted almost daily at the northeastern division traffic department of General Tel. Co. of Ind. Taking the lead parts during the half-hour sessions on four days of each week are the division's operators.

Purpose of the real-life action is to train operators to be quicker than quick when they look for telephone numbers or the names and addresses of Gen. Tel. customers for persons calling information and for intercept service. Of course, this quickness must be keeping company with accuracy, or it is useless.

Through the use of a machine known as a "T-Scope," the operators are trained to fully concentrate on scanning information and forming a mental image of it in the fraction of a second the machine allows it to be seen.

The instructor will tell the operators beforehand what they should look for when the information is flashed on the screen; for instance, whether they should pick out a particular telephone number from a group of number listings or whether it is a certain person's address or name they should find.

A "companion" that General Tel. Co. of Indiana's northeastern division operators are becoming well acquainted with is the "Tachistoscopic" (better known as "T-Scope") shown at the left. T-Scope students are, from left to right, seated, DIANE SNEARY, NORMA SANDERS and JOY KOEGLER. Standing is CAROL SAAF, instructor.

The operators are also given tests in the form of a series of numbers, words or letters printed on a page with certain of each category designated as the "key" reference. They are timed while attempting to find exact duplication of these "key" words, numbers or letters.

By gradually speeding up the time for the tests each day, the operators will eventually be able to see and accurately record information at a speed of 1/25th second — and this is fast!

The T-Scope is capable of flashing information on the screen at 1/100th of a second but for the purposes of the operators' training, the "slower" speed has been chosen as the goal.

Six operators are currently taking the course, three to a class, with more classes planned for the near future. Depending on the success of the tests in the northeastern division, the first to attempt the course, similar classes will be organized in the remaining five divisions. — (*Indiana General News.*)

Facts For A Lemonade Stand Operator

■ ONE THING about this warm weather — it brings out the businessman in a fellow. We mean you've probably noticed more and more grown folks with their coats off, mopping their brows as they go by your house. We'll bet you've figured that they would like something cool to drink, like lemonade. And if they knew a fellow was saving for a new baseball mitt, they'd be willing to pay for what they drink.

First you find yourself some furnishings: A wooden crate from the cellar should do nicely. Then get a large piece of cardboard and letter a sign "5¢ Ice Cold Lemonade 5¢" and set up shop on your front walk. Mom's volunteering her juicer so all you need now are lemons. This will require a capital investment; that is, you get the half-dollar that Grandma gave you for your bank. With it, you lay in a supply of lemons at the corner store.

Now you're in business, son. And in any business, whether it's the telephone business where your Dad works or your juicery, certain rules apply. The first is easy: You've got to earn back your half-dollar — and a little more if the whole thing is going to be worth the effort. Even a 10-year-old knows that pretty well.

So you holler up and down the street, and the sun beats down. In jig time almost all your lemonade is gone (after all, no machine can dispense soda pop that will measure up to lemonade made and served by a 10-year-old). You've gotten your original four bits back, and an extra dime to boot. Now you need more lemons; but going to the store will mean closing the stand for a while.

Here's where — if you'll pardon the expression — we'll separate the 10-year-old men from the 10-year-old boys. If you put your dime in your pocket, close up shop and run off after the lemons yourself, you're going to miss a lot of possible customers. If you split your profits, give a nickel to the kid next door and let *him* get the lemons while you tend the stand, then, lad, you've got the stuff of greatness in you.

There's the second rule, hardly less important than the first: A business — whether it's lemonade or telephone — has to look for better ways and means to do business. Usually it means putting part of an already thin profit back into the business. Like your parting with your nickel, often this isn't the easiest thing to do.

So there's the third rule: You have to clear enough money to make your business grow. It's the same way in grown-up business, like in the telephone business where your Dad works. Sometimes it's a hard job to find the money a company needs to grow on, but it's got to be found. It's a growing country, boy, and your Dad and the people he works with know that a company that doesn't grow with the country goes backward, which is the wrong direction for any business. Even a 10-year-old lemonade stand operator knows that. — *Ed Smith, in Western Electric's "GHQ."*

SAFETY CORNER

Ladder Safety Tips

(Continued from the 8/15 TE&M)

Step Ladders

(1) — Step ladders shall be inspected before using for the following: Missing, broken, loose, split or badly worn steps; missing, broken or bent spreaders; ladder legs splintered, split or cracked; loose or missing step braces, rods or blocks; loose or broken back legs or braces; wax, grease, etc. on steps; protruding nails, loose rivets or splinters; excessively loose, split, splintered, or otherwise damaged pail shelf.

(2) — Shelves on step ladders are not designed to take excessively heavy tools or materials. When placing tools or materials on shelf, see that they are well balanced and will not fall off.

(3) — Make sure that the side supports of the shelf on step ladders have a sufficient overlap under the step they engage, so as to prevent failure of the shelf when tools or materials are laid on it.

(4) — The recommended method of carrying a step ladder is as follows: (a) Remove all tools and material from ladder steps and shelf; (b) Fold step ladder before attempting to move it; (c) Place arm between steps and rest the inside of upper-most ladder leg on shoulder. Carry it at an angle with ladder legs forward and down.

(5) — Never use a step ladder as a straight ladder. See that the step ladder is fully opened. Set level and lock spreaders properly before it is used.

(6) — Do not stand on the top step of any step ladder, except the 3½ foot step ladder. The top step of the 3½ foot step ladder may be used to stand on *only* if a secure hand hold is available.

(7) — For any other use of a step ladder, especially when the work cannot be reached in safety from the second step from the top procure a longer ladder.

(8) — Do not overreach. Relocate ladder.

(9) — Keep both feet on the same step when standing on a step ladder.

(10) — Sitting on the top step of a step ladder is permissible while straddling the ladder if the work can be performed more conveniently from this position, providing there is no danger of the ladder tipping or employe losing balance.

(11) — Always ascend or descend facing the step ladder with the free use of both hands. Use step side only.

(12) — Avoid tilting ladder when pulling objects from either side. It is safer to place ladder so that it faces in direction of pull.

(13) — Two men shall not work at the same time from any step ladder.

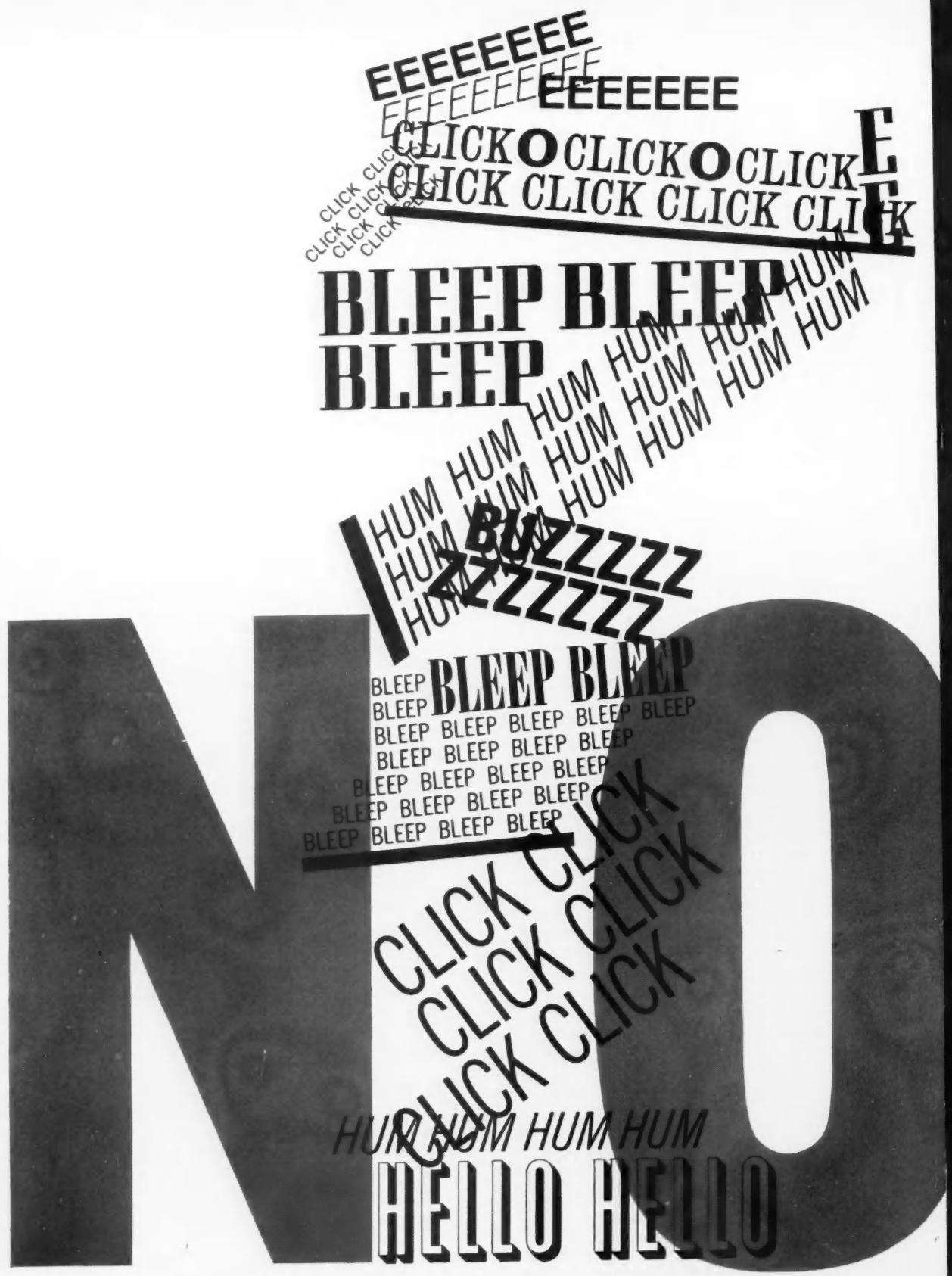
(14) — Do not attempt to shift position of ladder while standing on it.

(15) — Boxes or any objects whatsoever shall not be used to gain additional ladder height.

(16) — Never attempt to stand straddling a step ladder with one foot on the shelf and the other foot on a step.

(17) — Ladder should not be placed at doorways, particularly where door opens towards ladder. Where it is

Please turn to page 50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NO
CLICK CLICK
CLICK CLICK
CLICK CLICK
HUM HUM HUM HUM
HELLO HELLO

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necessary to place a ladder at a doorway, the door shall be barricaded or braced open. Use warning signs where required. In some cases a second employe may be necessary if conditions warrant.

(18) — Tools and materials shall not be left unattended on the steps or shelf of a step ladder for long periods of time, particularly where there is heavy pedestrian traffic.

(19) — Care should be taken in closing step ladder so as not to get fingers caught in spreaders or between front and back legs.

(20) — Make sure there is nothing on the floor over which you might trip or fall when stepping from a ladder.

More "Tips on Ladder Safety" in next issue of TE&M.

Prize Winning Suggestions

■ Suggestion plans pay off in two ways — in awards to employes, and in savings to the company. Here are some recent prize winning suggestions made by employes of Michigan Bell that may help other companies improve methods of doing the job.

Billing Errors

■ Mrs. Bernice J. Freimark, service representative at Monroe, Mich., received a $1,000 special award for a suggestion which will save the company almost $11,000 a year.

She felt it was unnecessary to call a customer whose long distance call was erroneously billed to another phone, to get approval to bill it properly the next month.

"Most customers recognize the call when it finally does appear on the statement," Mrs. Freimark said. "So it seemed a waste of time to me to call them."

Public Telephones

■ Robert J. Meyers, public telephone collector, Ann Arbor, Mich., suggested that when the collector puts a lock on a new public phone he remove the tape which is on the lock, and which bears the stop and route number of the station, and put it on the under side of the phone.

Pay phones are sometimes taken out of service before the last collection is made. It is then difficult to identify the correct key for them.

When the telephone is removed, information on the tape will identify the lock and help locate the proper key. The suggestion will result in annual savings of $2,025.

Interzone Calls

■ Mrs. Cecilia D. Sundelin, operator in the Webster office, Detroit, Mich., felt that the recording of billing information on mark sense cards for interzone calls from coin boxes was a waste of time, since the cards are not needed for billing.

Her suggestion to discard this practice was accepted, and subsequent appraisal showed the annual savings in time would be worth $2,800.

Modifies Cable Test Set

■ Allen G. Klope, cable splicer, Detroit, Mich., had a suggestion which is being adopted System-wide. He suggested the use of a more efficient part in a cable test set.

The test set, which is usd to locate trouble on a cable, is equipped with a buzzer. Theoretically, when the buzzer stops as the set is moved along the cable, the trouble has been located. But the contact points of the buzzer often fused together after a brief period of operation. As a result, splicers often spent much time repairing points or working unknowingly with an inoperative buzzer.

While working in the cable shop, Klope tried automobile distributor points in a test set he was repairing. Because of the harder material of those points, the set still functioned after five hours of steady use, while the old type points often fused after half an hour's use.

No estimate of the savings to the company could be made, but committee felt that it was well worth the $500 they awarded Klope.

Window Envelopes

■ To eliminate time and postage wasted on statements returned by the Post Office marked "No Such Number," Mrs. Alberta Agla, business office supervisor, Detroit, Mich., suggested that the statement envelope windows be enlarged so that the whole address always can be seen by the postman.

Her suggestion was put into practice and will save the company more than $2,700 a year.

Changes Equipment Bag

■ A suggestion to modify the lineman's "B" equipment bag by adding two pockets with flaps on the outside was made by Donald E. Gross, station installer, Flint, Mich. The new bag will reduce the use of installer's aprons costing $5 each.

The flaps on the new pockets will keep small articles, such as plastic sleeves, from falling out and becoming lost. The pockets also help in separating small items.

Although it is obvious that savings will result from adoption of this suggestion, their amount could not be estimated.

Eliminates Wasteful Sorting

■ Miss Barbara A. Smith, Michigan office staff assistant, Comptroller's Operations, Southfield, suggested that an automatic business machine panel, used to tell a sorting machine what cards to sort out, be rewired to eliminate two unnecessary "sorts" of 102,000 cards each month. This frees the equipment for other work when machine time is at premium. Miss Smith's suggestion will save the company more than $1,100 a year.

Keeps Equipment in Service

■ While modifying markers and senders (which, on No. 5 Crossbar equipment, route a call and then send it on its way) in preparation for cutovers, William O. Tetro, dial switching foreman, Grand Rapids, Mich., faced the task of keeping all the apparatus in service while the cutover job was under way.

He devised a special circuit which allows a marker to send a call to any sender even though it has not yet been modified. The suggestion, which will save the company $1,000, has been submitted to other Bell System companies for use during cutovers.

PRIZE WINNERS WANTED

Let TE&M pass on the prize winning suggestions made by your employes to telephone men and women all over the world. Send complete information to Editor, TE&M, 7720 Sheridan, Chicago 26, Ill. . .

PART FOUR OF A SPECIAL REPORT*

"TALKING A MILE A MINUTE"

By HARLEY F. ROLFE
Vice President
Communications Engineering, Inc.

THERE are some other interesting things about radiotelephone installations not related to the equipment but to the nature of the service.

(1) It is difficult to "overbuild" a radiotelephone system. Because of the channel arrangement, with a limitation of 40-50 subscribers, and the fact that the equipment is designed in 50-unit packages, you may have initial feasibility for only one channel initially with ultimate feasibility for 200. You add capacity, however, only in 50 unit steps, meaning you never have little unused capacity and still have all the growth capacity required.

(2) The investment is not disabled. Telephone plant once installed is costly to remove and re-apply, and the largest portion of the investment is permanently installed. Such is not true of radiotelephone. Only the base station and control office portion is so placed and only that portion of system cost is significantly jeopardized. Surplus mobiles can easily be re-located to other locations in the system or be sold for use in other parts of the country. Contrast this with problems attending the relocation of a pole line because of lack of expected usage.

(3) In some areas the base station coverage may extend over several exchange areas — not connected by EAS. Here the problem is the objection of a user from one of the secondary exchanges to paying toll to call his own area. While there is some consideration being given to the use of special trunking devices to cause a given mobile to always "home" on his own exchange — the neater solution is to simply have the user incur the toll with the explanation that he is actually calling "toll free" when he calls the prime exchange area which, in the base of a business user, may come out in his favor.

See the July 15, August 1, and August 15 issues of TE&M for Parts 1, 2, and 3 of this report.

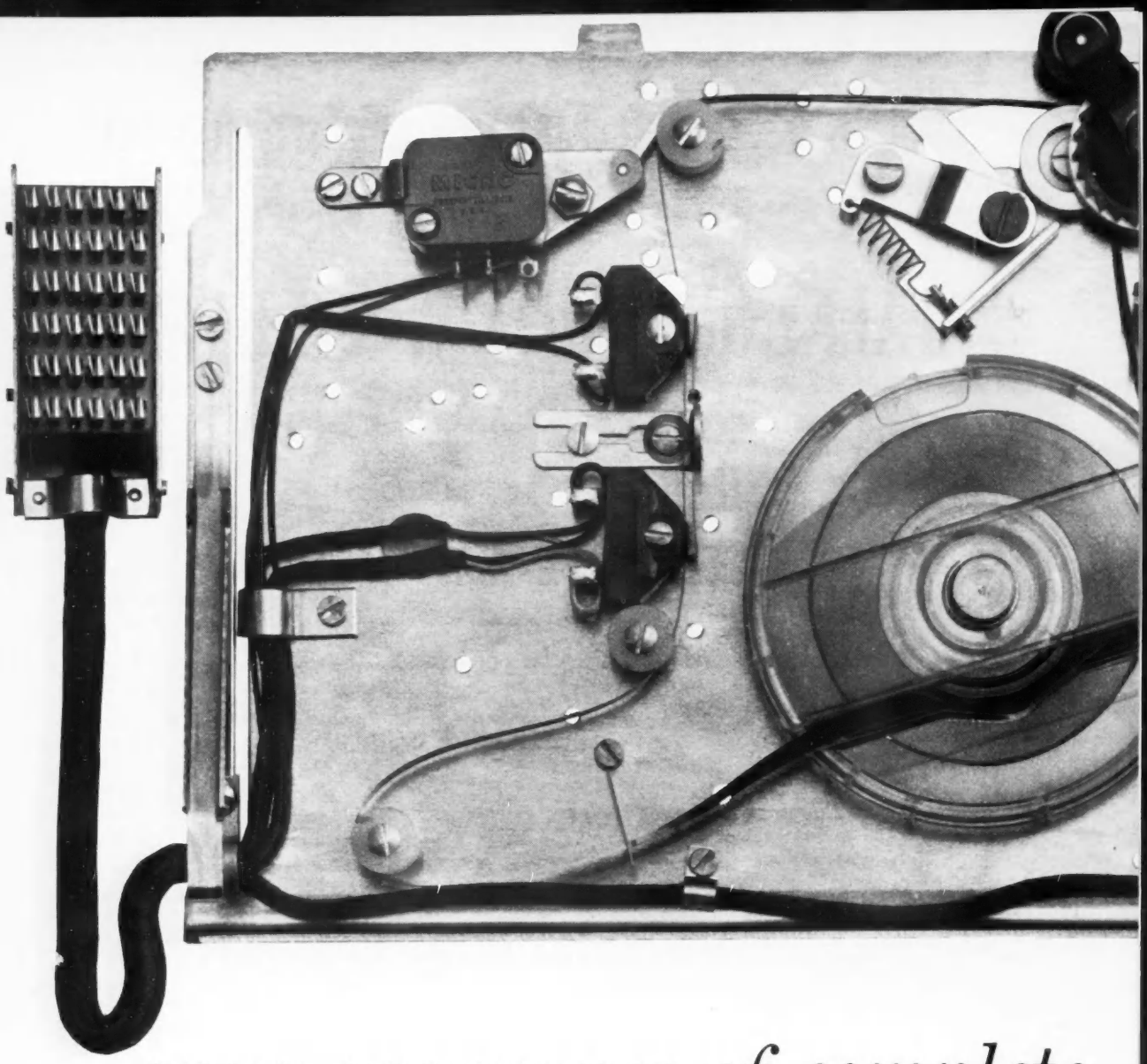
Rules & Regulations

THE subject cannot be complete without a discussion of the Federal Communications Commission role and position in regulation of radiotelephone activities: "Rules and Regulations — Part 21" is our byword. There in Subport G, Domestic Public Land Mobile Radio and for some readers Subport H, Rural Radio Service, you will find the description of service, procedure for obtaining a license, etc. To comment generally as it related to specific things, you must decide:

(1) Three frequency ranges are available — 35 Mc, 150 Mc, 450 Mc. You will find most of attention being directed by the industry to the middle 150 Mc area because:

(a) It is not subject to severe "skip" (a signal bouncing off an ionospheric layer above the atmosphere from one part of the country to another) interference. The 150 Mc energy can be controlled and guided not only because of resistance to the skip characteristic of lower channels, but low cost directional antennas of convenient size allow the coverage pattern to be shaped to meet specific needs. Also 150 Mc equipment is much more impervious to the effects of atmospheric and man-made electrical noise.

(b) Radio frequency energy at 450 Mc approaches a propagation characteristic approaching line-at-sight. Over rolling terrain any distance from the transmitter, the signal drops to unusable levels. Further, because of interelectrode capacities in the tubes and components, special oft-times expensive techniques of design must be used with standard base station power being 15-20 watts rather than 50 watts. The combination of signal deterioration and difficulty in developing high powers significantly restricts its use to areas where high antenna sites are available and only a limited area needs coverage. (As an aside — it serves very well for low cost point-to-point trucking and can be carrier loaded to 24 channels.) It is not generally a good mobile



...your assurance of complete

Readout equipment on right takes information from magnetic tape and programs it into chargeable information. This information is then converted by the equipment on the left into actual charges.

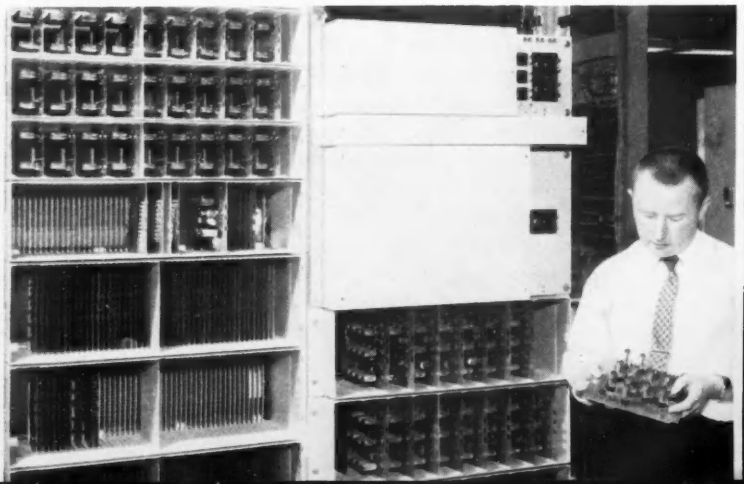
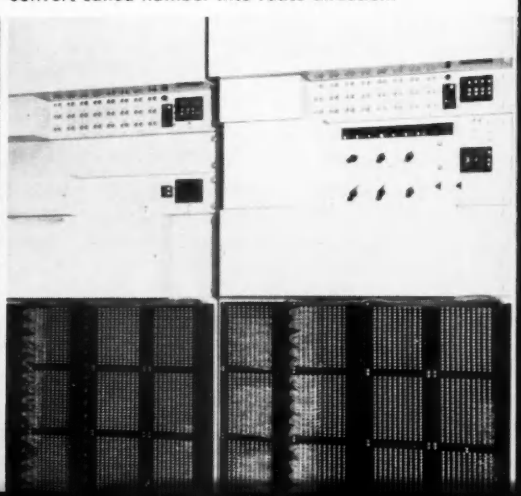
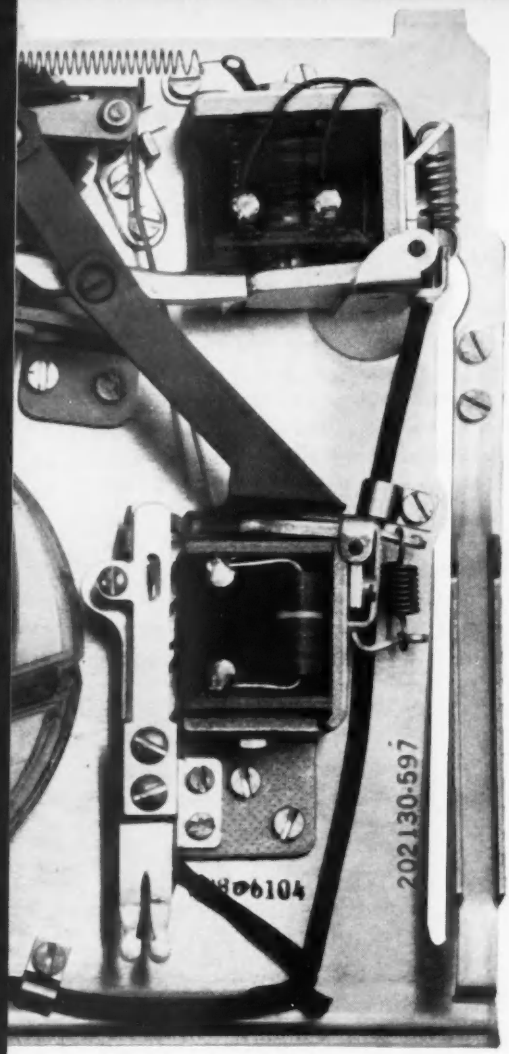


Illustration shows dual route interpreters which convert called number into route direction.





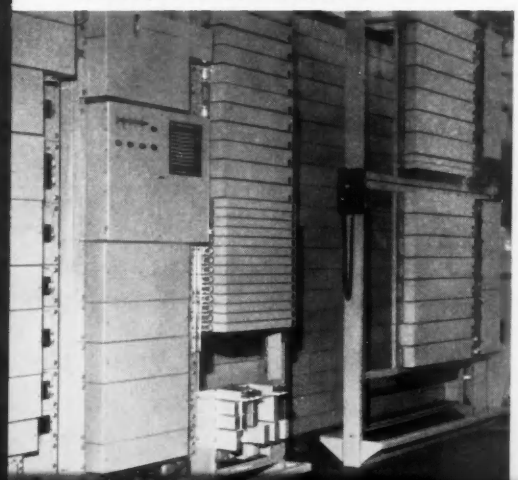
The Stromberg-Carlson® Magnetic Recorder

The Stromberg-Carlson XY® Toll Ticketing system is the *only* system that gives you 100% recording and readout...everything is recorded, nothing is lost. The *exclusive* magnetic tape recorders keep track of every call—including incompleted calls if you desire. The system is completely flexible . . . you can analyze traffic patterns without guesswork . . . make adjustments that boost the efficiency of your operation. Your toll revenue is protected—because your XY system gives you *all the facts.*

Stromberg-Carlson Toll Ticketing is a cost-saver in other ways. Magnetic recording saves time and labor because it needs virtually no manual attention. The system requires a minimum of maintenance . . . takes a minimum of space. It's ready *right now* to bring you operator savings on P.P.C.S. calls.

toll ticketing records!

Installation of XY Toll Ticketing equipment, with data link, at West Richfield, Ohio.



Let your Stromberg-Carlson representative show you exactly how XY Toll Ticketing can solve your toll ticketing problems through 100% magnetic recording and readout. In Atlanta, call: 875-7467; Chicago: STate 2-4235; Kansas City: HArrison 1-6618; Rochester: HUbbard 2-2200; San Francisco: OXford 7-3630.

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frequency for our purposes despite its use in some specific locations.

This is by no means a complete analysis, but serves to show in a general way why there is a concentration in the 150 Mc area.

(2) Your application will call for a showing of your rate schedule. The rate schedule requirements include the familiar monthly variety, plus rates for the subscriber who purchases a unit outright and only takes service from your base station. There are two comments pertinent to this situation:

(a) The fact that the F.C.C. requires a rate filing does not necessarily mean that F.C.C. will be the regulating body. If your local P.U.C. accepts your filing on this subject, the F.C.C. may choose to withdraw from the regulating role. The discretion in the matter is that of the F.C.C., however, promised on the inter-state implications of radio transmissions which is the underlying raison d'etre for their activity. If the local P.U.C. does not exercise regulation over radiotelephone, the F.C.C. definitely will. In this respect, let me say that the use of a competent attorney for assistance in license filing, vote questions, etc., is worthwhile.

(b) The requirement for the subscriber-owned unit can be troublesome. The F.C.C. feels that to restrict service only to those that will lease their equipment is restrictive. In the event you have such units in service, be sure the user understands the correct implication of his relationship with you. Specifically, in the event such a subscriber incurs service difficulty he will invariably blame your station operation. Because you will be the only one in an area with the particular kind of equipment involved, it will be no difficulty for him to get his unit in deplorable technical condition by using untrained, unequipped technicians. In this case you have the impossible task of keeping *your station equipment* in such shape that *his* radio never gives trouble. This is why I stated earlier that the philosophy of complete control of all elements of the service you must guarantee was never more true. As a practical matter the unit cost of subscriber equipment will preclude this situation or you will probably persuade him to take service from your organization if the situation does arise.

(3) We mentioned above that in the other F.C.C. services the nature of traffic which may legally be carried is closely controlled. I do not pretend to speak for the intent of the Rules, but it is apparent that if the message content is to be restricted, then there must likewise be some avenue for the disallowed traffic. That avenue can be radiotelephone, but it takes some vigilance on your part.

Become familiar with the Rules that apply to industrial users. Watch the cars in which units are installed, and make sure their job assignment is properly in line with the type of radio system they have. If there are violations, discretely ask "why." The organization may have been misled. If so, bring the offender to the attention of the appropriate authorities. I'm very aware that this type of thing must be done with absolute discretion — you live with those people. Yet, with your investment in the area premised upon your receipt of that type traffic, and your rights to it protected by federal law, your approach is legitimate and need only be tempered with judgment to be successful.

What can the industry do? Here are some suggestions:

(1) The telephone directory has tremendous readership. Publish by areas a map to appear in the forward section of the directory showing each of the areas now served with the channel designation in use. Ostensibly this is actually part of your directory service giving present users the channel information they need to get service in the various presently served areas. It will further serve to encourage those who are contemplating some sort of radio service to check with the phone company first. Each company, whether it has a system or not, should insert this standard page.

(2) Standardize on the term radiotelephone. Use of expressions like mobile telephone, mobilphone, mobiltel only can serve to confuse the customer with the idea that there is some connection between regular mobile radio and radiotelephone. We know from our analysis that it is but a junior version and those that use it should know how much less they settled for.

(3) Be aware of the legal protection given your system through the F.C.C. Rules, and insist that users know and respect these laws.

What can I add? Only that at each convention speakers urge the industry to keep step with new concepts, broaden their service with such things as the subject at hand, and not let others move in on the services provided by the telephone industry. Certain quiet suggestions of apathy or lethargy seep out. And then I look at the industry — thousands of plants converted to dial, DDD coming, population and growth exceeding figures that were regarded as absolute maximums 8-10 years ago — and it seems to me there is little but progress. The problem is that the telephone people are kept breathless doing their basic job — providing America's telephone service.

Nonetheless there is the reality of outsiders moving into areas that should be served by the telephone industry.

I was kidding only partly with that first comment about vending machine communications. With a short drive through your community notice the number of antennas already up and most of you will see the feasibility. It must be a little disquieting to know that everyone of those systems belongs to one of your present customers that you have been serving for years. The considerations are not complex and the addition of a radiotelephone system to your present operation requires little attention of your engineering and administrative people. Yet its uniqueness arouses public interest and announces to your community your intention to be at the forefront with modern communication service. Let your community talk . . . . a mile a minute. — *Harley F. Rolfe.*

Puts profits within easy reach

The convenience of mobile communications without disturbing vehicle comfort, appearance or safety . . . this is what you can offer subscribers with the new 150 Mc AChieverfone mobile radiotelephone by AC.

The AChieverfone control head is only $4\frac{1}{16}$" high, 6" deep and $8\frac{7}{8}$" wide (including handset). This means that it can be positioned *anywhere* on or under the dash, on the transmission hump or even in some glove compartments. Furthermore, the AChieverfone control head never impairs driver vision or crowds front seat passengers.

The AChieverfone is as modern and attractive as today's newest household telephones. Compact cars or limousines, AChieverfone blends with all car interiors, yet it's rugged enough for the cab of a construction truck!

Attractive styling and compact design are only part of the AChieverfone story. Pushbutton-controlled four-channel capability, proven reliability, low initial and operating costs, and fast, easy installation make it the most imitated mobile radiotelephone on the market.

Let an AC sales engineer personally demonstrate the AChieverfone for you. Write or call AC today.

SPECIFICATIONS—FCC Type Accepted

Transmitter: 144-174 Mc, 4-channel
RF output: 22.5 watts into 52 ohm load

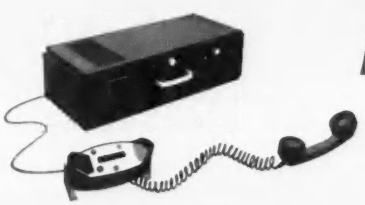
Receiver: 144-174 Mc, 4-channel
Wide Band (60 kc) or Narrow Band (30 kc) models available (Bands converted to Narrow or Wide by substituting IF filter)

Frequency Stability: within 0.0005%

Selective Signaling: 51,000 five-digit (compatible, 2-tone sequential) codes available

Size: Receiver-Transmitter, $21\frac{1}{4}$" x $8\frac{7}{8}$" x $6\frac{1}{4}$"

Weight: 37.25 pounds, including receiver-transmitter, control head and cable



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TELEPHONE ENGINEER
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INDUSTRY

NEWS REPORT

Telephone Industry News Highlights

COAST-TO-COAST REPORTS

United Utilities, Inc., reports continuation of 1960's record growth in revenues and net income . . . General Tel. directors declare regular dividends . . . California Interstate Tel. Co. seeks rate adjustment . . . Rochester Tel. reports on earnings.

United Utilities Reports Record Growth Continues

A CONTINUATION of the 1960 record growth in revenues and net income of United Utilities, Inc., Kansas City, Mo., was reported in the first six months of 1961 and a similar trend appears favorable for the last half, C. A. Scupin, president, has announced.

Gross revenues for the first half of 1961 were 8 per cent greater than a year ago and net income advanced nearly 15 per cent, both setting new highs in dollar volume for any comparable period.

Economies resulting from conversion of telephone exchanges to dial operation, increased number of customers served, and some rate adjustments were factors in the improved earnings, Scupin pointed out.

For the 6-month period, net income available to the common stock was $3,318,447, equal to 65 cents a share on the common stock outstanding, compared with $2,891,881, or 57 cents a share a year earlier, adjusted for the 2-for-1 stock split effected April, 1961. The company reported 5,132,054 average number of shares outstanding June 30, against 5,062,240 a year before. Gross revenue for the six months aggregated $24,681,258, up from $22,849,742 a year earlier.

Cumulative figures for the 12-month period ended June 30 showed net income available for the common of $6,580,646, equal to $1.28 a share, against $5,560,645, or $1.12 a share a year earlier. Revenues of $48,988,390 compared with $44,740,175.

United Utilities, which supplies more than 515,000 customers with telephone, electric, gas and water service in a 15-state area, spent more than 13 million dollars on improvements and additions in the six months. More than 82 per cent of the system's 496,460 telephone installations are now dial operated in contrast to 27 per cent five years ago, Scupin said. By the end of the year the company's planned conversion will boost the total to 92 per cent and the remaining manual exchanges — except for possible acquisitions in the

Please turn to page 60

Members of the North Star Chapter of the Independent Telephone Pioneer Association and their families recently met at Alexandria, Minn. for a picnic. After enjoying the picnic dinner, the group toured the Alexandria vacation area and the Runestone Museum. The above photograph was taken of the group at the Darling Ranch Resort by Tom Arvig of Melrose, Minn. Arthur Krueger, Minneapolis, Minn. is president of the North Star Chapter.

SORRY, old fellow, but it's just good business to use the very best wire on rural telephone lines . . . and that's USS Tiger Brand Amertel. Its higher strength means fewer poles, less materials, faster installation, and lower costs. In a heavy loading area you can span up to 200 feet with Amertel 85, 350 feet with Amertel 135, and 600 feet with Amertel 195. Grade for grade, Amertel's voice transmission efficiency is the highest. The physical and electrical characteristics of Amertel 195 give it a transmission efficiency higher than any other galvanized steel telephone wire. Where icing is a problem the greater strength of USS Amertel protects against failure. Amertel will stretch under an ice load but will return to almost its original sag after thawing. The heavy zinc coating on USS Amertel gives greater corrosion resistance and lowers maintenance costs. For your next job, check the advantages of using USS Tiger Brand Amertel. Write American Steel and Wire, Dept. 1225, Rockefeller Building, Cleveland 13, Ohio.

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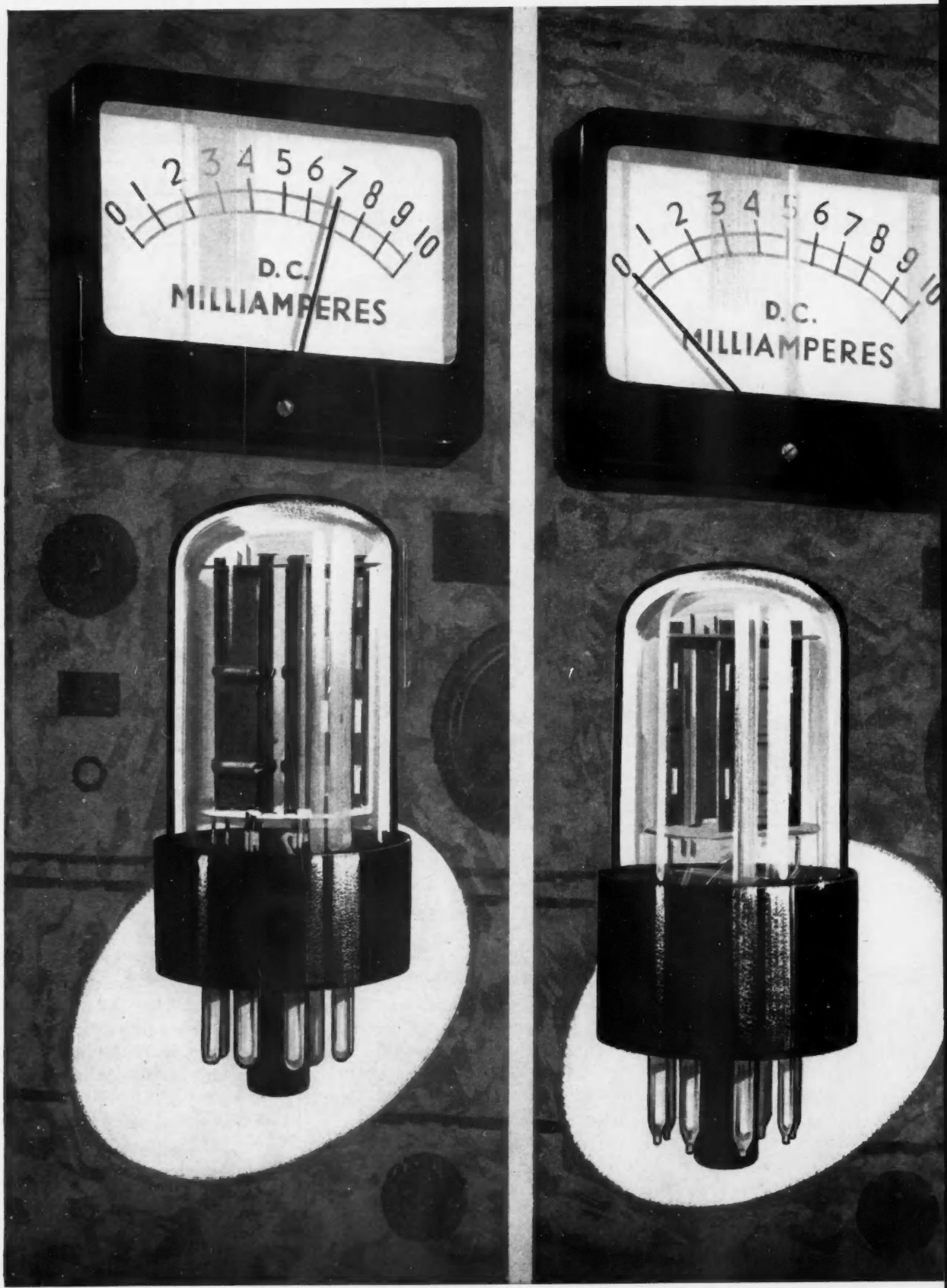
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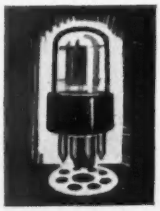
WHAT PRICE SERVICE?



...or the case of the tapered tube pins!

Keeping customers happy is a great source of satisfaction to us. That's one of the reasons why we see to it that you're never more than 24 hours away from full repair or replacement service . . . and why we initiated "plug-in" design.

But we're committed to service at *any* price for another reason . . . the deep *personal* pride we take in our equipment, and our disappointment if it malfunctions in the field.

As a case in point, take the 6SN7 and 6SL7 tubes used in some of our equipment. In 1960, the tube manufacturers changed from round to pointed base pins. Fine—except there was one unique difficulty. Since the round base pin type had been in service for a long time, replacement with pointed base pin tubes often resulted in high resistance contact. The tube socket contacts, which had spread slightly during the long life of the original tube, were not meeting the new pointed pins. So, we warned our customers, made special notes in our service manuals, and bought up thousands of the round-pin type so we could meet all field replacement requirements.

Possibly a small thing in itself, but if you take care of the small things, the big things take care of themselves—to *everyone's* benefit.

This is our way of reminding you that, when you buy Lenkurt microwave or carrier equipment, you also buy the experience, knowledge and personal attention of the entire Lenkurt Electric staff.

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interim — will be converted next year. When the present modernization program is completed in 1962, capital expenditures are expected to be reduced substantially. The construction budget for the year — 26 million dollars — is the largest in the company's history.

General Tel. Directors Declare Regular Dividends

A REGULAR quarterly dividend of 19 cents per share on its common stock has been declared by the board of directors of General Telephone & Electronics Corp. Donald C. Power, chairman of the board and chief executive officer, announced it will be payable on September 30, to shareowners of record on August 22.

Regular quarterly dividends of 55 cents per share on the 4.40% Preferred Stock; 59.375¢ per share on the 4.75% Convertible Preferred Stock; 53.125¢ per share on the 4.25% Convertible Preferred Stock; 66 cents per share on the 5.28% Convertible Preferred Stock; and 54.5¢ per share on the 4.36% Convertible Preferred Stock; each of which is payable on October 1 to shareowners of record on August 22 were also declared at the meeting.

Calif. Interstate Seeks Rate Adjustment

WILLARD WADE, president, California Interstate Telephone Co., Victorville, Calif., has announced the filing of an amendment to its earlier application of March 7, 1960. The amendment, filed with the Los Angeles Office of the California Public Utilities Commission, seeks permission to lower some long distance rates, and also asks that some of its charges for local monthly service be increased.

The company first filed for an increase in rates in March, 1960. Subsequently, the California Public Utilities Commission held hearings and granted an increase on an interim basis which provided for roughly 50 per cent of the amount requested. This interim increase was granted with the stipulation that the company would conduct certain studies concerning division of long distance revenues with other companies, and submit an amendment to its application when these stipulations had been accomplished.

The Board of Directors, California Interstate Telephone Co., Victorville, Calif., has announced the election of WILLARD WADE, (left) president, to the position of chairman of the board to replace REID GARDNER, (right) who resigned. Wade will continue to serve as president. In submitting his resignation Gardner stated, "I've enjoyed my work as the first president of the company and my associations with company board members, officers and employes. I wish the company well in its future operations."

"We are doing just that," said Wade. "Under this proposed amendment we are seeking the rates for monthly local service which we originally asked for. We are also requesting that the company be permitted to reduce its long distance rates. All the changes, if granted, will result in a saving to our subscribers of $104 thousand annually."

The company president pointed out that the figures used in the estimates were based on the operating figures for the fiscal year ending March 31, 1961. According to estimates as reported by the company, its California subscribers will save over $335 thousand in reduced charges for long distance and leased line services. However, the reduction in annual revenue was estimated at $493,000.

A major offset for reduced revenue has been negotiated in the form of a better revenue settlement for long distance calls involving other companies. An additional offset is proposed in the form of an increase in some of the charges for local monthly service. The increases proposed vary in accordance with the size of the exchange, the number of subscribers, type of service involved, etc.

The company also proposes to reduce its rates for leased lines and increase its rates for directory advertising.

Rochester Tel. Reports 81 Cents Share Earnings

THE 1961 second quarterly report to stockholders of the Rochester (N.Y.) Telephone Corp., reports net income before preferred stock dividends for the six months ended June 30, of $1,718,636 — equivalent to 81 cents a share on the 1,640,623 shares of common stock outstanding. This compares with earnings of 70 cents a share on fewer shares for the same period of 1960.

"Our earnings," president William A. Kern stated in his message to stockholders, " . . . should be interpreted in terms of several unusual influences; 1960 earnings were low during this period because of unusual storms . . . This year, some of the maintenance and construction expenses planned for May and June have been deferred into the last half of the year as a result of a strike of plant department employes."

Among other items in the report, Kern recognized the work of the 200 supervisory employes who took on the task of providing continuous telephone service during the strike which lasted from May 5 to July 10. Calls to "Repair Service" reporting telephones out of order were handled on a normal basis. During the strike, however, only a few telephones were installed and major construction efforts halted.

On July 10 the force came back to work with a new three-year contract, and a backlog of 7,100 orders of all kinds. Priority in these orders, Kern further noted, has been given to the 5,000 customers who were without telephone service.

Among other developments, Kern reported the dial conversion of the Webster exchange serving approximately 5,800 customers on June 18. The cutover had been rescheduled from May 7 because of a Public Service Commission order which had suspended the rate schedule necessary to support the new toll-free plan between West Webster and Rochester.

Kern noted that "the cutover was

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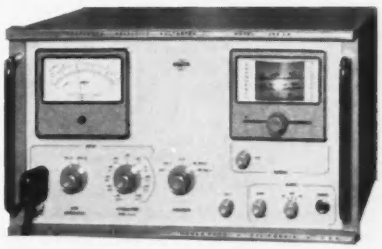
Monitoring of single-sideband carrier telephony signals is simple with self-contained crystal oscillators for carrier reinsertion in the Model 125B-CR Frequency Selective Voltmeter. Continuous tuning 3 to 620 kc, the 125B-CR is also a flat ac VTVM, 1 to 620 kc.

Direct-reading frequency, continuously tunable. Virtual elimination of spurious responses. Variable selectivity – 250, 2,500 cps, each 3 db down. Accuracy ±1 db, – 80 to + 32 dbm (as flat VTVM, ±0.5 dbm, – 20 to + 32 dbm), ideal for measuring carrier levels. Self-contained crystal oscillator for both frequency and level calibration



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3-620 kc	±125 cps ±1250 cps	±500 cps ±5 kc	±1 kc	±2 kc	±1 db	Bal. or unbal. 135 & 600 Ω; bridging input impedance, 20 kΩ nominal.

The Sierra Model 158A Frequency Selective Voltmeter operates from 500 kc to 10 mc; selectivity ±2000 cps 3 db down, ±20 kc 45 db down; frequency accuracy ±0.056 mc low end, ±0.08 mc high end; measuring accuracy ±2 db; line impedance for direct reading in dbm, unbalanced 600 ohms.

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Sierra Model 124A Line Fault Analyzer; Instantly pinpoints shorts, opens, grounds, indicates nature of fault, plus exact location. Easy to use, operates on "radar" principles; operates on most metallic power and communication lines, direct reading ½ to 100 miles, accuracy within ¼ mile.

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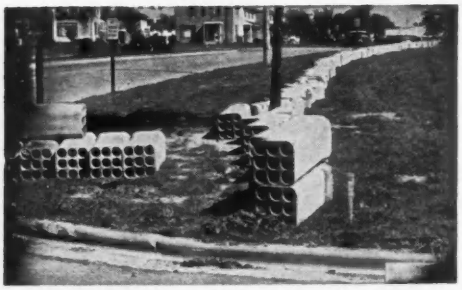

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Chicago Pre-Cast Products Corp., 29W629 North Aurora Rd., Naperville, Ill. Tel: ELmwood 5-2700—2701
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Eastern Pre-Cast Corporation, 675 Main St., Tullytown, Pa. Tel: Windsor 9-3750
Elmore Concrete Products Co., Division of North Star Concrete Co., Elmore, Minn. Tel: ELmore 52
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J. E. Evans Concrete Products Inc., Shelbyville, Ind. Tel: WAlnut 5-5301
Neff Concrete Products Co., 711 Section St., Danville, Ill. Tel: Danville 1016
PRE-CON Limited, Orenda Rd., Brampton, Ontario, Canada. Tel: HUdson 1-3492 (Toronto)
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IDT

This is the symbol of

INDEPENDENT TELEPHONE CORPORATION

which will be traded on the American Stock Exchange effective August 8, 1961.

Independent Telephone Corporation's system comprises fourteen subsidiary telephone companies operating in the states of Florida, Michigan, Missouri, New Jersey, New York and West Virginia.

completed in the midst of the strike, through the outstanding efforts of supervisory personnel."

Kern stated that the dial conversion of the last manual central office in the Rochester exchange area and the introduction of direct distance dialing, originally scheduled for October 15, have been postponed until late in the year as a result of the strike.

In conclusion Kern stated "The first six months of 1961 were significant ones to the company. It is reassuring to have three-year contracts with both unions representing our employes. We are now moving forward to complete our dial conversion program as rapidly as possible."

REA Announces Changes In Organization

THE STRUCTURE of a new organization within REA and personnel assignments accompanying the reorganization were announced by Administrator Norman M. Clapp on July 21.

This extensive reorganization, designed to meet the future needs of the agency, will result in a broader transfer of technical and management information among individuals associated with the REA programs. It will enable REA to implement new policies affecting its borrowers and improve the operational and general effectiveness of the agency by bringing staff and line people into a closer working relationship.

Personnel actions became effective August 20. The new organization within REA and key personnel are:

Office Of The Administrator

Administrator, Norman M. Clapp

Deputy Administrator, Richard A. Dell

Administrative Assistant to Administrator, Shirley M. Sawyer

Administrative Assistant to Deputy Administrator, Betty M. Quinn

Director, Rural Areas Development Staff, Richard M. Hausler

Assistant to Administrator, James F. Sullivan

Assistant to Administrator, Earl L. Hogan

Internal Auditor, Eugene R. Riddle

Legislative and Interagency Con-

sultant, Charles U. Samenow

Operations

Assistant Administrator, John W. Scott

Controller's Division, Leslie Surginer, controller. This division will be responsible for all agency activities concerned with borrowers' accounting; program analysis and evaluation; budget formulation and execution; and administrative and loan accounting. All office and field accountants for the rural electric, rural telephone, and rural areas development programs will be assigned to this division. This will provide desirable coordination of this extremely important program accounting function.

Another responsibility of this division will be the coordination of the Certified Public Accountant audit program of borrowers' accounts and records.

Information Services Division, William E. Spivey, director. This division will administer the information services program of the agency pertaining to rural electrification, rural telephone, and rural areas development programs.

Personnel Management Division, Henry C. Starns, director. This division will administer the personnel management program for the agency including employment, training, classification, organization, and employe relations.

Program Services Division, Robert T. Beall, director. This division will be responsible for functions concerning power requirements; borrowers' insurance; labor relations; and safety practices and standards for the rural electric, rural telephone, and rural areas development borrowers. The review and clearance of program procedures, bulletins, and staff instructions will be a responsibility of this division. Also, general services functions pertaining to procurement, space, records management and communications, and production control activities relating to loan application processing and construction progress.

The responsibility for the loan review function for all programs will be assigned to the Office of the Assistant Administrator-Operations. Thomas A.

Model GP-4400

A telephone Pearl

The PEARL is a dramatic telephone installation designed for locations where the decor demands a touch of elegance. It is an excellent unit for poolside patios, cocktail lounges, hotel lobbies, and restaurants.

Made from acrylic plastic, The PEARL is white in color. Lighting is provided by two fluorescent tubes behind the coin collector. Colored diffusers produce a mellow halo around the phone. Pink tubes with white diffusers are available.

The shelf above the directory space is covered with high-pressure laminated white plastic, sparkled with gold sequins.

The PEARL creates impulse calls, steps up profits. Order TODAY.

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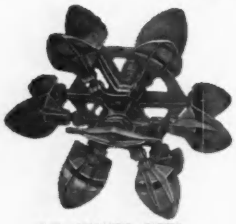
Area Code 404

GENERAL MACHINE PRODUCTS COMPANY, INC.

Old Lincoln Highway at Pa. Turnpike, Trevose, Pa.



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Martin will direct this activity.

Telephone Program

Assistant Administrator, Edgar F. Renshaw.

Deputy Assistant Administrator, Walter L. Wolff.

Telephone Engineering and Operations Division, Raymond W. Lynn, director. This division will be responsible for carrying out program staff activities relating to engineering and operations aspects of the rural telephone program. It will provide and perform services for the Area Offices and to borrowers as requested by the Area Offices. Several office engineers now located in the Area Offices will be assigned to this division.

Telephone Standards Division, Thomas J. McDonough, director. This division will be responsible for assignments of a research, development and standards nature concerned with the administration of the rural telephone program. The Telephone Standards Division will be staffed by a group of specialized electronic engineers who can devote the majority of their time to assignments associated with respective functional areas.

Telephone Area Offices. The five Telephone Area Offices will continue to be the point of contact with loan applicants and borrowers, and will be responsible for providing advice and assistance to borrowers on loans, engineering, construction, operations, and management matters. All line work pertaining to the administration of the rural telephone program will be performed by or through the Area Offices. Loan fund budgets and the processing of borrowers' requisitions for funds will be the responsibility of the Engineering Branch. The various states comprising the geographical boundaries of each Area Office will remain unchanged.

North Central Area Office, Arthur H. Schartner, assistant director, in charge.

Northeast Area Office, William H. Eastman, director.

Southeast Area Office, Harold F. Clark, director.

Southwest Area Office, Walter E. Rich, assistant director, in charge.

Western Area Office, Donnan E. Basler, director.

IDT Now Traded On American Stock Exchange

ADMITTED to American Stock Exchange listing and dealings recently (Aug. 8) were 728,507 common shares of Independent Telephone Corp., Dryden, New York. The stock opened on 2,700 shares at 9¼ under ticker symbol I D T.

Independent Telephone Corp., was organized for the purpose of acquiring Independent telephone companies throughout the United States and of assisting managements of those companies to meet specific demands made by the public for telephone service. It operates as a holding company, thereby retaining the advantages of local management and initiative, and functions as a service company to provide its subsidiary and affiliated companies with the facilities, technical personnel, equipment and credit they require.

On December 31, 1960, Independent Telephone reported having 11 subsidiary and four affiliated companies providing 23,379 telephones for service. The areas served by the company are primarily rural, with a few large towns, in the states of New York, New Jersey, West Virginia, Missouri, Michigan and Florida.

Whitney Blake Names Cumpstone, Sales Mgr.

JOHN BROWN COOK, president, Whitney Blake Co., New Haven, Conn., has announced the appointment of Charles G. Cumpstone as sales manager.

In 1945 Cumpstone opened up Whitney Blake's first district office and maintained the position of district manager until 1958. During that year he became manager of national telephone sales which title he has just relinquished. He is well known in the Independent telephone industry and is a member of the Independent Telephone Pioneer Association.

CUMPSTONE

Cumpstone will make his headquarters at the main office of the company in New Haven.

Get either—fast—from Commercial Cord! ■ There's a full stock of top quality cords coast to coast, in ours and our distributor's warehouses. There's every kind of phone, patch and test cord—including the exclusive Spiraflex® retractile. You get what you want—right away. ■ Get catalog, samples, prices from Commercial Cord Co., Clifton Springs, N.Y. Distributed by: Leich Sales Corp., 427 W. Randolph St., Chicago 6, Illinois; Automatic Electric Sales Corp., Northlake, Illinois.

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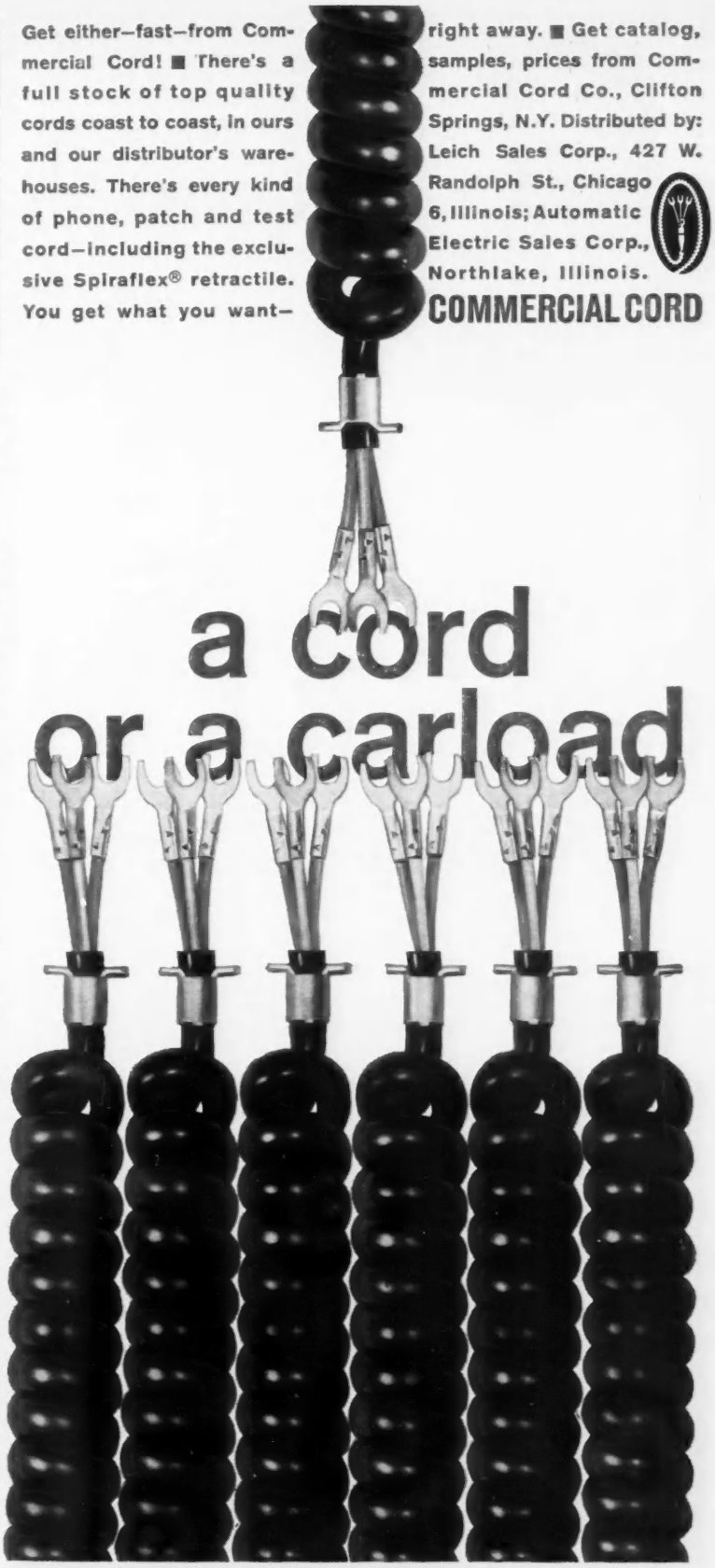

"Off The Board"

Communications Securities

Markets as of August 14, 1961	DIVIDEND	BID	ASKED	LAST SALE
American Tel. & Tel. Co.	$3.60			124
Anglo-Canadian Tel Co. (Br. Col., Dom. Rep.)	1.20	44	45½	
Bell Tel. of Canada	2.20			52
British Columbia Tel. Co.	2.20	47	49	
California Interstate Tel. Co.	.70	22½	23½	
California Water & Tel. Co.	1.36	39½	40½	
Calif. Pac. Util. Co. (Calif., Ore., Nev.)	.90	23	24½	
Carolina Tel. & Tel Co.	1.60	46½	—	
Central Tel. Co. (Minn., Ia., N. C.)	.88	28¼	29½	
Chenango & Unadilla Tel. (N. Y.)	1.20	26½	27½	
Cincinnati & Suburban Tel. Co.	4.50	110	114	
Citizens Util. Co. (Calif., Pa.) "A"	stk. only	27	28	
Citizens Util. Co. (Calif., Pa.) "B"	.60	24¼	25½	
Commonwealth Tel. Co. (Pa.)	1.00	25½	26½	
Florida Tel. Co.	1.00	27¼	28½	
General Tel. & Electronics Corp.	.76			25½
Hawaiian Tel. Co.	.54	19	20	
Independent Tel. Co.	none	10	11	
Indiana Tel. Co.	.50	37	—	
Inter-County Tel. & Tel. Co. (Fla.)	.72+stk	26½	27½	
Inter-Mountain Tel. Co. (Va., Tenn.)	.80	20¼	21¼	
International Tel. & Tel. Corp.	1.00			59½
Jamestown Tel. Corp. (N. Y.)	6.00	88	—	
La Crosse Tel. Corp.	.80	16½	—	
Lincoln Tel. & Tel. Co. (Neb.)	2.60	67	—	
Lorain Tel. Co. (Ohio)	1.40	34½	—	
Middle States Tel. Co. (Ill.)	.92	31	33	
Mountain States Tel. & Tel. (Ariz., Colo., Mont., Tex.)	.90			30⅛
New England Tel. & Tel.	1.72			47⅝
North Carolina Tel. Co.	none	1⅛	1¼	
Northern Ohio Tel. Co.	2.00	58	—	
Pacific Tel. & Tel. Co.	1.14			40⅞
Peoples Tel. Corp. (Pa.)	4.00	21	—	
Pioneer Tel Co. (Minn.)	1.00+stk	36	—	
Rochester Tel. Corp., (N. Y.)	1.00			28⅞
Southeastern Tel. Co. (Fla.)	1.00	25½	27½	
Southern Nevada Tel. Co.	1.20	41½	42¾	
Southern New England Tel. Co.	2.20	52¾	54	
Southwestern States Tel. Co.	1.28	31	32	
Telephone Service Co. of Ohio "A"	.36	27	29	
Telephone Service Co. of Ohio "B"	.36	34	—	
Tidewater Tel. Co. (Va.)	1.40	27	—	
United Utilities, Inc.	.80	24¾	25¾	
Virginia Tel. & Tel. Co.	1.00	22	—	
West Coast Tel. Co. (Wash., Ore., Calif.)	1.36	33½	34½	
Western Carolina Tel. Co.	.40	12	13	
Western Power & Gas Co.	1.00	27½	28½xd	
Western Union Telegraph Co.	1.40			44⅞
Western Utilities Corp.	.36	12½	13¼	
Western Light & Tel. Co., Inc. (Mo., Kans., Ia.)	1.20	30½	31½	

(Source of Market — DEAN WITTER & CO.)

U. S. Instrument Advances Peyton

THE UNITED STATES Instrument Corp., Charlottesville, Va., has announced the promotion of Jack M. Peyton from sales engineer to switchboard sales manager. Peyton, 34, is a native of Atlanta, Ga., and a Phi Beta Kappa graduate of Washington & Lee University, Lexington, Va. Signal Corps service during World War II was followed by four years with the Lexington Va. Telephone Co., as central office supervisor. He joined USI in October, 1955.

PEYTON

RCA Names Gen. Mgr., Communications-Controls Div.

APPOINTMENT of Francis J. Dunleavy as general manager, Communications & Controls Division, Radio Corp., of America, has been announced by Theodore A. Smith, executive vice president, RCA Industrial Electronic Products.

Dunleavy, formerly general manager, Industrial Controls, joined RCA in 1959 as general manager of the Industrial & Automation Division. In his new position, he will direct the activities of the Detroit Industrial & Machine Tool Department, Graphic Arts Products Department, Communications Products Department, Microwave Department, and the Aviation Equipment Department.

Dunleavy succeeds John J. Graham, recently named to the newly-created position of division vice president, operations, RCA Electronic Data Processing Division.

Before becoming associated with RCA, Dunleavy was with Yale & Townsend Manufacturing Co., Philadelphia, for eight years. He served as general manager of the Materials Handling Division and was responsible for sales, engineering, manufacturing and labor relations activities. He had been employed previously for six years as assistant controller of the American Pulley Co., Philadelphia.

Hardy Named Sec. Treas., U. S. Instrument Corp.

DIRECTORS of the United States Instrument Corp., Charlottesville, Va., have announced the appointment of W. Clyde Hardy as secretary-treasurer of the corporation. He is former corporate controller. Hardy, 34, has been with USI since July 22, 1957. He is a native of Richmond, Va., and a graduate of Richmond Professional Institute. He also completed graduate work at the University of Richmond. His experience includes employment with Reynolds Metals Co., Williams & Reed, and the Virginia State Corporation Commission. Hardy also served three years with the U. S. Navy during World War II. In his new capacity, Hardy will work directly with USI's President, William A. Rockwell, and will exercise full control over all corporate financial matters.

HARDY

Lenkurt Electric Adds Two Sales Engineers

TWO NEW sales engineers have been added to Lenkurt Electric Co., Inc., field sales and service offices, one at Minneapolis, Minn., and one at Dallas, Tex., to specialize in the Mobiltel line of mobile telephone systems.

The two new men are Henry A. Sorenson, at Minneapolis, and Donald J. Robb, at Dallas. The Minneapolis office is responsible for North and South Dak., Neb., Minn., Iowa, and Wisc. The Dallas office has as its territory, Mo., Kans., Okla., Ark., and Texas.

Before joining Lenkurt Electric, Sorenson was a maintenance engineer for Osceola Farmers Mutual Tel. Co. in Minnesota. Prior to that, he had been with Remington Rand Co., Univac Division, as a computer technician. Robb was a cable transmission engineer with the New York Tel. Co., having worked his way up from an installer in the Plant Construction Department during 16 years with the company.

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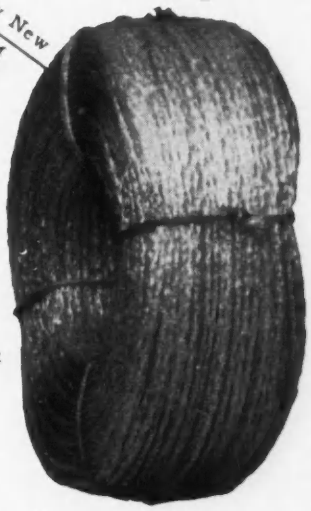

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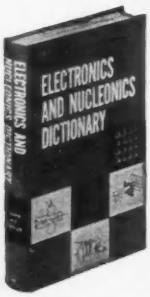

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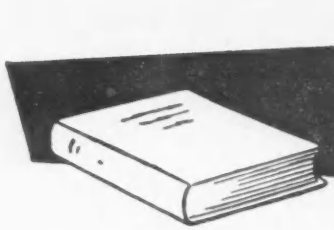

THE BACK OF THE BOOK

By JOHN G. REYNOLDS

"Communications"

LAST month one of the editors of Western Electric's "GHQ" had just about reaccustomed himself to the joys of being a dashing commuter after 18 months of solitary automobile travel when an anxiety-stirring question appeared in the *New York Herald Tribune*.

The question: *Afraid your train isn't running on time?*

The editor hadn't been because he knew the Long Island Rail Road's departure times challenge death and taxes for top billing among life's verities. Arrival times are more flexible.

Anyway the *New York Herald Tribune* story went on to say last-minute traveling conditions were now available via telephone. By dialing 999-1234 anyone could find out about transportation conditions in and out of the city.

Warned by the photos and stories on what happened recently when a municipal fuse blew, the editor dialed.

A recorded masculine voice began, *"This is the New York Municipal Communications Service . . ."* Then for one minute, this voice, dripping with omniscience, covered highway, subway, railroad and airport traffic situations. While the editor was gratified to learn that the LIRR on that day, at least, was doing everything possible to promote the joys of suburbia, he was fascinated by another part of the recording.

In tout-like fashion the voice took him into his confidence and stated there were radar units operating on Riverside Drive and on four other arteries. For the price of one message unit or a dime from a pay phone, thousands of motorists could now save the price of a wallet-thinning speeding ticket—obviously New York's biggest bargain — and, incidentally, their lives.

First reports from the mayor's office proved that more than 76,000 inquisitive, maybe even apprehensive, New Yorkers dialed 999-1234 in the first week of its operation.

The service is capable of handling 30,000 calls an hour. Even though calls averaged only 10,000 a day during the first week, Mayor Wagner noted that response was still 50 per cent above that anticipated.

Always happy to be of service, the Mayor also said he was sure the system would prove worthwhile.

In the Year 2000

WE ARE indebted to Senator Wallace F. Bennett of Utah for a reminder that federal programs already authorized will cost the taxpayers a trillion dollars in the next 40 years. A trillion, in case you'd like to break it down, is a thousand billion — $1,000,000,000,000.

There's no one in this office who is anywhere near capable of visualizing such an amount. But one illustration may help: In cash, it would form a stack of $1,000 bills 88,000 stories high.

Remember — our Utah friend was speaking only of already authorized programs. New and expanded programs could vastly increase costs.

And one thing is sure — if the welfare state philosophy continues to grow and grow, a trillion ultimately might look like petty cash. Then the value of the inflation-busted dollar will move right down toward the vanishing point — along with both security and freedom.

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NO. 8 OF A SERIES

* The Arabian world may have anticipated the Wright Brothers and Thomas Edison with the Magic Carpet and Aladdin's Lamp. But nobody — repeat, nobody — anticipated Warren in the introduction of transistorized ringing generators for the telephone industry. Warren was first. Even the Caliph of Bagdad would have to admit that.

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- **Power savings** — requires just ½ to 1/10 the power of other ringing generators.

Warren offers a complete line of Transistor Multi-Ringers and Single Frequency Ringers in 25 and 50 watt sizes, none of which look very much like those in the drawing. (We've corrected the situation below.)

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TYPE TFR — Transistor Float Rectifiers

TYPE TPP — Transistor Power Packs

TYPE TMR — Transistor Ringing Generators (25 & 50 Watt)

TYPE TRT — Transistor Ring Talk Power Supplies

TYPE TTG — Transistor Tone Generators

TRANSISTOR TONE LINK EQUIPMENT

WARREN
MANUFACTURING COMPANY
Littleton, Massachusetts
Tel. HUnter 6-3511

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For reprints of this series, write Warren Mfg. Co., Littleton, Mass.

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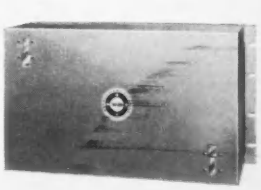
This is what a Warren Transistor Ringing Generator really looks like.



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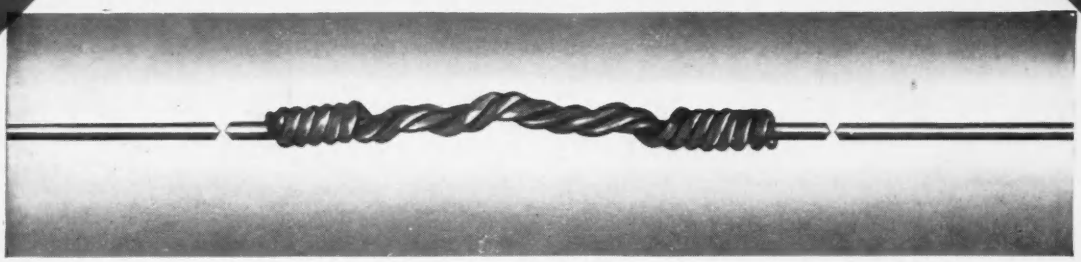

DEFECTIVE SPLICE

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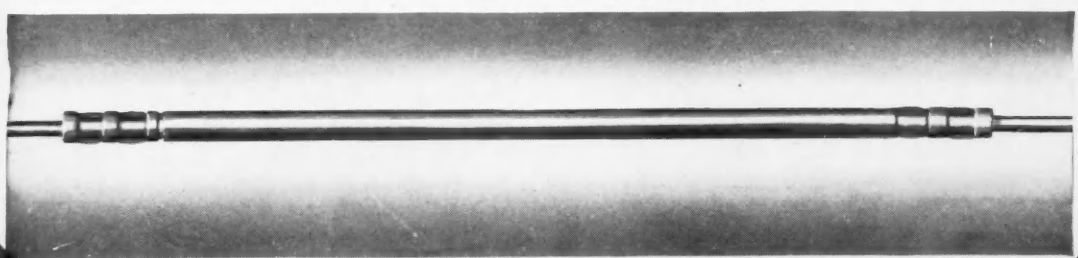

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